

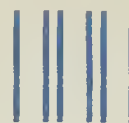
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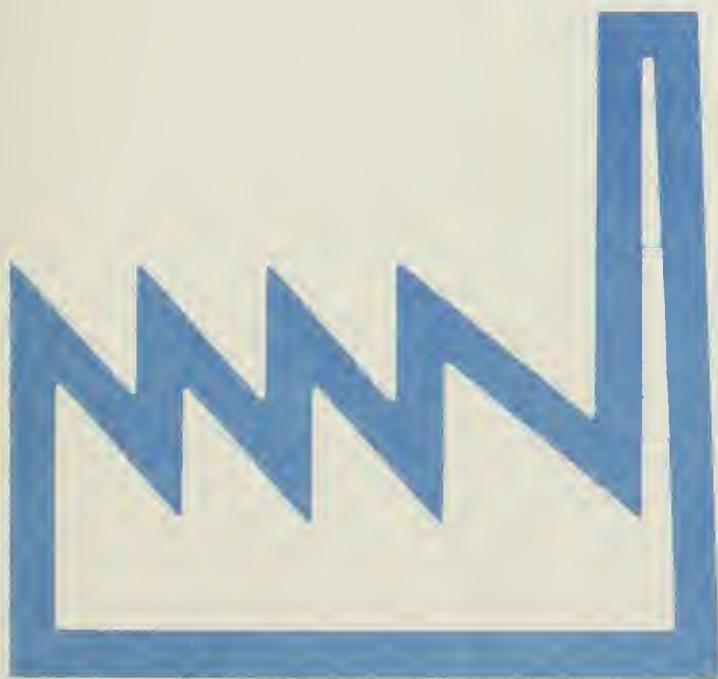
1982**Census of
Manufactures**

MC82-I-35G

INDUSTRY SERIES

**Service Industry Machines
and Machine Shops**

Industries 3581, 3582, 3585, 3586, 3589, 3592, and 3599

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The publications
from the 1982 Economic and
Agriculture Censuses are dedicated
to the memory of Shirley Kallek,
Associate Director for Economic Fields.
During her career at the Bureau of the
Census (1955 to 1983), she continually
directed efforts to improve
the timeliness and accuracy of
economic statistics.

1982 Census of Manufactures

MC82-I-35G

INDUSTRY SERIES

Service Industry Machines and Machine Shops

3581	Automatic Merchandising Machines
3582	Commercial Laundry Equipment
3585	Refrigeration and Heating Equipment
3586	Measuring and Dispensing Pumps
3589	Service Industry Machinery, N.E.C.
3592	Carburetors, Pistons, Rings, Valves
3599	Machinery, Except Electrical, N.E.C.

Issued March 1985



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INDUSTRY DIVISION
Gaylord E. Worden, Chief

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INTRODUCTION

ECONOMIC CENSUSES OVER TIME

The early beginnings of America's industrial output were first measured in the United States in the 1810 Decennial Census and again in 1820, when questions on manufacturing were included with those for population. Beginning with the 1840 Decennial Census, there were enumerations of manufactures and mineral industries at 10-year intervals up to and including the year 1900 for manufactures and 1940 for mineral industries. The latter census was again taken for 1954, 1958, 1963, and 1967.

Because of the increasing dominance of manufacturing in the early 20th century, Congress directed that quinquennial censuses of manufactures be taken beginning in 1905. However, from 1919 through 1939, these censuses were conducted every 2 years. The need for war-related current surveys in the early 1940's postponed the next census of manufactures until 1948 (for 1947). That census was again taken for 1954, 1958, 1963, and 1967.

Retail and wholesale trade data were first collected in 1930, and in 1933 information on selected service industries was added to the data-collection operation. These business censuses, as they were called, were again taken for 1935, 1939 (as part of the 1940 decennial program), 1948, 1954, 1958, 1963, and 1967.

Information on construction industries was obtained first in 1930 and again for 1935 and 1939. Data for the full spectrum of construction industries were not gathered again until 1968 (for 1967).

The need for transportation data to supplement information available from existing governmental or private sources was recognized by Congress in the late 1950's and early 1960's. The census of transportation (consisting of several surveys) was taken first for 1963 and again for 1967.

Since 1967, all of the above censuses have been taken quinquennially as part of the Census Bureau's economic census program. (For the 1977 censuses, the coverage of the service industries was broadened from "selected services" to "all services, except religious organizations and private households." A total of 41 additional four-digit standard industrial classifications¹ (SIC's) in 7 SIC major groups was added to the scope of the census. While most of the industries included for the first time for 1977 were covered again for 1982, some were not, i.e., hospitals; elementary and secondary schools; colleges, universities, and professional schools; junior colleges and technical institutes; labor unions and similar labor organizations; and political organizations.)

The first manufacturing census for an outlying area was conducted in Puerto Rico for the year 1909. Thereafter, with the exception of 1929, a census was taken at 10-year intervals through 1949. The first censuses of retail trade, wholesale trade, and selected service industries in Puerto Rico were conducted for 1939. These censuses also were taken for the years 1949, 1954, 1958, 1963, and 1967. A census of construction industries was introduced first in Puerto Rico for 1967. These censuses of Puerto Rico have been taken since then for the years 1972, 1977, and 1982.

Censuses of manufactures, retail trade, wholesale trade, and selected service industries were conducted in Guam and the

Virgin Islands of the United States for 1958, 1963, 1967, 1972, 1977, and 1982. Censuses of mineral industries were taken in the Virgin Islands of the United States for the years 1958, 1963, and 1967 but not since that time. A census of construction industries was also undertaken in these areas for 1972, 1977, and 1982.

Retail trade, wholesale trade, selected service industries, manufacturing, and construction industries were canvassed for the first time in the Northern Mariana Islands in 1983 (for 1982).

For 1982, the economic censuses and agriculture censuses were conducted concurrently.

USES OF THE ECONOMIC CENSUSES

The economic censuses are the major source for facts about the structure and functioning of the Nation's economy and provide essential information for government, business, industry, and the general public. They provide an important part of the framework for such composite measures as the gross national product, input-output measures, indexes of industrial production, and indexes measuring productivity and price levels. Information from the censuses is used to establish sampling frames and as benchmarks for current surveys of business activity, which are essential for measuring short-term economic conditions.

State and local governments use census data to assess business activities within their jurisdictions. The private sector uses the data to forecast general economic conditions; analyze sales performance; lay out sales territories; allocate funds for advertising; decide on locations for new plants, warehouses, or stores; and measure potential markets in terms of size, geographic areas, kinds of business, and kinds of products made or sold.

Following every census, thousands of businesses and other users purchase reports. Likewise, census facts are disseminated widely by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. All 1982 data are available on microfiche from the U.S. Government Printing Office and most data on computer tape from the Census Bureau. Finally, the more than 50 State Data Centers also are suppliers of economic census statistics.

AUTHORITY AND SCOPE OF THE ECONOMIC CENSUSES

The economic censuses are required by law under title 13 of the United States Code, sections 131, 191, and 224, which directs that they be taken at 5-year intervals for the years ending in 2 and 7. The 1982 Economic Censuses covered manufacturing, mining, construction industries, retail trade, wholesale trade, service industries, and selected transportation activities. Special programs also cover minority-owned and women-owned businesses. The next economic censuses are scheduled to be taken in 1988 for the year 1987.

¹Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-00500176-0.

CENSUS OF MANUFACTURES

General

The 1982 Census of Manufactures is the 31st census of manufactures of the United States. For 1982, it was conducted jointly with the censuses of mineral industries, construction industries, retail and wholesale trades, service industries, selected transportation activities, and minority-owned and women-owned businesses.

This report, from the 1982 Census of Manufactures, is one of a series of 82 industry reports, each of which provides statistics for groups of related industries. Additional separate reports will be issued for each State and on special subjects, such as size of establishments, legal form of organization, and fuels and electric energy consumed.

These separate reports will subsequently be issued as portions of the final census volumes. Volume I, Subject Statistics, will show comparative statistics for industries, States, and standard metropolitan statistical areas. It also will show selected subjects, such as concentration ratios in manufacturing, selected materials consumed, manufacturing activity in government establishments, and water use in manufacturing. Volume II, Industry Statistics, will be a consolidation of reports for the 82 groups of industries showing the same information that is shown in this report. Volume III, Geographic Area Statistics, will contain establishment-based data (number of establishments, employment, payroll, value added by manufacture, and capital expenditures) for each State and its important standard metropolitan statistical areas, counties, and places, by industry groups and important individual industries. Totals for "all manufacturing" will be shown for counties and places with more than 450 manufacturing employees. The introduction to the final volumes will discuss, at greater length, many of the subjects described in this introduction. For example, the volume text will discuss the relationship of value added by manufacture to National income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

Scope of Census and Definition of Manufacturing Industries

The 1982 Census of Manufactures covers all establishments employing one person or more primarily engaged in manufacturing as defined in the 1972 Standard Industrial Classification (SIC) Manual and its 1977 Supplement.¹ This is the system of industrial classification developed over a period of years by experts on classification in government and private industry under the guidance of the Office of Management and Budget. This system of classification is in general use among government agencies as well as organizations outside the government.

The SIC manual defines manufacturing as the mechanical or chemical transformation of inorganic or organic substances into new products. The assembly of component parts of products is also considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials handling equipment.

¹Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-00500176-0.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for the trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

Relationship Between Annual Survey of Manufactures and Census of Manufactures

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is based on a scientifically selected sample of approximately 55,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply detailed information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services.

Establishment Basis of Reporting

The census of manufactures and the annual survey of manufactures are conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1982, as in earlier years, a minimum size limit was set for including establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

Manufacturing Universe and Census Report Forms

The 1982 Census of Manufactures universe includes approximately 345,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in this publication are described below.

1. Small Single-Unit Companies Not Sent a Report Form

In the 1982 Census of Manufactures, approximately 140,000 small single-establishment companies were excused from filing reports. Selection of these small

establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of other Federal agencies. The cutoffs were selected so that these administrative records cases would account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed report forms.

Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material "not specified by kind" (n.s.k.) categories.

The industry classification codes included in the administrative records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes these administrative record cases were given only a two- or three-digit SIC group. For the 1982 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as "not elsewhere classified" (n.e.c.) within the given two- or three-digit industry groups.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassifications have no significant effect on the statistics other than on the number of establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments Sent a Report Form

The 205,000 establishments covered in the mail canvass were divided into three groups:

a. **ASM sample establishments**—This group consisted of approximately 55,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see appendix, Annual Survey of Manufactures).

In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll,

and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. Results of the ASM inquiries are included in tables 3c and 3d of this report.

The census part of the report form is one of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the approximately 450 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries, as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space was also provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM)**—Approximately 100,000 establishments were included in this group. A variable cutoff, based on administrative records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive one of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-unit establishments (non-ASM)**—This group consisted of approximately 50,000 establishments. For those industries where application of the variable cutoff for administrative records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or "short" form was used. These establishments received one of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same

data were collected on the short as well as the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the values of the n.s.k. categories.

Auxiliaries

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 10,000 separately operated auxiliaries are included in the paperbound geographic area series, the bound volumes of the census of manufactures, and in a report issued as part of the 1982 Enterprise Statistics survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two or more establishments. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include (1) program planning, including sales research and coordination of purchasing, production, and distribution; (2) company purchasing, including general contracts and purchasing methods; (3) company financial policy and accounting, tax accounting, company sales and profit reports, and personnel accounting; (4) general engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations; (5) direction of company personnel matters; and (6) legal and patent matters.

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

Industry Classification of Establishments

Each of the establishments covered in the census was classified in one of approximately 450 manufacturing industries in accordance with the industry definitions in the SIC system. Under this system of classification, an industry is generally defined as a group of establishments producing a single product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of plants must be significant in terms of its number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively became narrower with successive additions of numerical digits. There are 20 major groups (two-digit SIC), 143 industry groups (three-digit SIC), and approximately 450

industries (four-digit SIC). The product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 1,500 classes of products, identified by a five-digit code, and about 11,000 products, identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in making those products. For example, establishments engaged in blast furnace operations, refining of nonferrous metals from ore, or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be "frozen" in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or the change has occurred for two successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see appendix, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The result of these rules covering the switching of plants from one industry classification to another is that, at the aggregate level, some industries comprise different mixes of establishments between survey years, and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is true particularly for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in tables 6a through 6c represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the

composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios, which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that put only the finishing touches on an already highly fabricated item. For example, the refrigeration industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfer of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

Value of Shipments for the Industry Compared With Value of Product Shipments

This industry report shows value of shipments data for industries and products. In tables 1a through 5a, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Product shipments shown in table 6a represent the total value of shipments of products classified as primary to an industry that were shipped by all manufacturing establishments regardless of their industry classification.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered disclosure, so this item may be given even though other information is withheld.

MANUFACTURES—INDUSTRY SERIES

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line has been suppressed. However, the suppressed data are included in higher level totals. Additional disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

MICROFICHE AND COMPUTER TAPES

All the data in this report are available on microfiche. Selected data are also available on computer tape.

In addition to selected published data being on computer tape, one major data series, the location of manufacturing plants, will be available only on computer tape. This series presents the number of establishments by employment size class by four-digit SIC industry codes for States, counties, and places of 2,500 inhabitants or more. These data are available for both State and county by industry, and State and place by industry.

Microfiche reports are sold by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Computer tapes are sold by the Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, D.C. 20233.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1982 Census of Manufactures may be obtained on computer tape or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Industry Division, Bureau of the Census, Washington, D.C. 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

- Represents zero.
- (D) Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
- (NA) Not available.
- (NC) Not comparable.
- (S) Withheld because estimate did not meet publication standards on the basis of either the response rate or a consistency review.
- (X) Not applicable.
- (Z) Less than half the unit shown.
- n.e.c. Not elsewhere classified.
- n.s.k. Not specified by kind.
- pt. Part.
- r Revised.
- SIC Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

Users' Guide for Locating Statistics

[For explanation of terms, see appendixes]

	Item	Four-digit industry statistics		
		Historical	Operating ratios	By geographic area
1	Number of companies	1a		
2	Number of manufacturing establishments	1a		2
	Employment and payroll:			
3	Number of employees	1a	1b	2
4	Payroll	1a	1b	2
5	Supplemental labor costs			
6	Production workers	1a	1b	2
7	Production-worker hours	1a	1b	2
8	Production-worker wages	1a	1b	2
	Shipments, cost of materials, and value added:			
9	Value of shipments (four-digit)	1a	1b	2
10	Product class shipments (five-digit)			
11	Product shipments (seven-digit)			
12	Value added by manufacture	1a	1b	2
13	Cost of materials	1a	1b	2
14	Fuels and electric energy			
15	Materials consumed by kind			
	Inventories:			
16	Total, end of year	1a		
17	By method of valuation			
18	By stage of fabrication			
	Capital expenditures, assets, rental payments, and purchased services:			
19	New capital expenditures	1a		2
20	Used plant and equipment expenditures			
21	Gross assets			
22	Depreciation			
23	Retirements of buildings and machinery			
24	Rental payments			
25	Purchased services			
	Ratios:			
26	Specialization	1a		
27	Coverage	1a		

*Number of companies with shipments of over \$100 thousand.

**Detailed information shown.

in This Report by Table Number

Four-digit industry statistics—Con.				Five-digit product class and seven-digit product statistics				
Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class	
3a					*6a			1
**3a	4	5a						2
3a	4	5a						3
3a	4	5a						4
**3d								5
**3a	4	5a						6
**3a	4	5a						7
3a	4	5a						8
3a	4	5a		5b, 5c				9
				5b, 5c	6a	6b	6c	10
					6a			11
3a	4	5a						12
**3a	4	5a						13
3a, 3d			7					14
								15
3b, 3c	4							16
3b, 3c								17
3b								18
**3a, **3d	4	5a						19
**3a, **3d								20
**3d								21
**3d								22
**3d								23
**3d								24
**3d								25
3a				5b				26
3a				5b				27



Service Industry Machines and Machine Shops

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DESCRIPTION OF INDUSTRIES AND SUMMARY OF FINDINGS

SERVICE INDUSTRY MACHINES AND MACHINE SHOPS

This report shows 1982 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC Code and Title

3581	Automatic Merchandising Machines
3582	Commercial Laundry Equipment
3585	Refrigeration and Heating Equipment
3586	Measuring and Dispensing Pumps
3589	Service Industry Machinery, N.E.C.
3592	Carburetors, Pistons, Rings, and Valves
3599	Machinery, Except Electrical, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1a-5a) with product statistics (table 6a) showing shipments by all industries of the primary products of the specified industry. The extent of the "product mix" is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Small single-unit companies with up to 20 employees (cutoff varied by industry) were excluded from the mail portion of the census. For these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated), data on payrolls and receipts were obtained from administrative records of other government agencies. The remaining statistics were developed from industry averages.

Establishment data were tabulated based on industry definitions contained in the 1972 Standard Industrial Classification (SIC) Manual and its 1977 supplement.¹

INDUSTRY 3581, AUTOMATIC MERCHANDISING MACHINES

This industry comprises establishments primarily engaged in the manufacture of automatic merchandising units, also referred

to as vending machines, excluding music, amusement, or gaming machines, and coin-operated mechanisms for such machines.

In the 1982 Census of Manufactures, Industry 3581, Automatic Merchandising Machines, recorded employment of 7.4 thousand. The total value of shipments for establishments classified in this industry was \$479 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 16 percent below the 8.8 thousand reported in 1977. The leading States in employment in 1982 were Missouri, California, Tennessee, and New Jersey, accounting for approximately 55 percent of the industry's 1982 employment. Data for these States have been withheld to avoid disclosing data for individual companies. This represents a shift from 1977 when Missouri, New Jersey, Arkansas, and California accounted for approximately 49 percent of the industry's employment.

Compared with 1981, employment decreased 15 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3581 shipped \$436 million of products primary to the industry, \$31 million of secondary products, and had \$12 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 93 percent (specialization ratio). In 1977, this specialization ratio was 94 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 93 percent. The products primary to industry 3581, no matter in what industry they were produced, appear in table 6a and aggregate to \$446 million in current prices.

The total cost of materials and services used by establishments classified in the automatic merchandising machines industry amounted to \$267 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of total value of shipments.

¹Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-005-00176-0.

INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT

This industry comprises establishments primarily engaged in the manufacture of laundry and dry cleaning equipment and pressing machines for commercial and industrial use. Establishments primarily engaged in the manufacture of household laundry equipment, including coin-operated washers and driers, are classified in industry 3633.

In the 1982 Census of Manufactures, Industry 3582, Commercial Laundry Equipment, recorded employment of 4.7 thousand. The total value of shipments for establishments classified in this industry was \$321 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 2 percent above the 4.6 thousand reported in 1977. The leading States in employment in 1982 were Ohio, Texas, Kentucky, and Louisiana, accounting for approximately 45 percent of the industry's 1982 employment. Data for these States have been withheld to avoid disclosing data for individual companies. These same States were the leaders in 1977, when they accounted for approximately 60 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Compared with 1981, employment decreased 2 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3582 shipped \$294 million of products primary to the industry, \$12 million of secondary products, and had \$16 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 96 percent (specialization ratio). In 1977, this specialization ratio was 90 percent.

Establishments in this industry also accounted for 87 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 81 percent. The products primary to industry 3582, no matter in what industry they were produced, appear in table 6a and aggregate to \$339 million in current prices.

The total cost of materials and services used by establishments classified in the commercial laundry equipment industry amounted to \$148 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of total value of shipments.

INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT

This industry comprises establishments primarily engaged in the manufacture of refrigeration equipment and systems and similar equipment for commercial and industrial use; complete air conditioning units for domestic, commercial, and industrial use; and warm air furnaces, except electric. This industry also includes establishments primarily engaged in the manufacture of soda fountains and beer dispensing equipment. Humidifiers and dehumidifiers, except room, are also classified in this industry. Establishments primarily engaged in the manufacture of household refrigerators and home and farm freezers are classified in industry 3632; electric air space heaters in industry 3634; and electric warm air furnaces and other electric comfort heating equipment in industry 3699.

In the 1982 Census of Manufactures, Industry 3585, Refrigeration and Heating Equipment, recorded employment of 120.5 thousand. The total value of shipments for establishments classified in this industry was \$12,390 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 13 percent below the 138.6 thousand reported in 1977. The leading States in employment in 1982 were New York, Ohio, Texas, and Tennessee, accounting for approximately 40 percent of the industry's 1982 employment. Data for Tennessee have been withheld to avoid disclosing data for individual companies. These same States were the leaders in 1977, when they accounted for approximately 40 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Compared with 1981, employment decreased 12 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3585 shipped \$10,587 million of products primary to the industry, \$914 million of secondary products, and had \$889 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 92 percent (specialization ratio). In 1977, this specialization ratio was 89 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 95 percent. The products primary to industry 3585, no matter in what industry they were produced, appear in table 6a and aggregate to \$11,036 million in current prices.

The total cost of materials and services used by establishments classified in the refrigeration and heating equipment industry amounted to \$6,191 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number

of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of total value of shipments.

INDUSTRY 3586, MEASURING AND DISPENSING PUMPS

This industry comprises establishments primarily engaged in the manufacture of measuring and dispensing pumps commonly used in service and filling stations for dispensing gasoline, oil, and grease, including grease guns. Establishments primarily engaged in the manufacture of pumps and pumping equipment for general industrial use are classified in industry 3561.

In the 1982 Census of Manufactures, Industry 3586, Measuring and Dispensing Pumps, recorded employment of 8.1 thousand. The total value of shipments for establishments classified in this industry was \$676 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 9 percent above the 7.4 thousand reported in 1977. The leading States in employment in 1982 were North Carolina, Ohio, Indiana, and Illinois, accounting for approximately 55 percent of the industry's 1982 employment. Data for these States have been withheld to avoid disclosing data for individual companies. This represents a shift from 1977 when Indiana, Missouri, North Carolina, and Illinois accounted for approximately 55 percent of the industry's employment.

Compared with 1981, employment increased 21 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3586 shipped \$547 million of products primary to the industry, \$88 million of secondary products, and had \$41 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 86 percent (specialization ratio). In 1977, this specialization ratio was 61 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 82 percent. The products primary to industry 3586, no matter in what industry they were produced, appear in table 6a and aggregate to \$591 million in current prices.

The total cost of materials and services used by establishments classified in the measuring and dispensing pumps industry amounted to \$300 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the

time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of total value of shipments.

INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.

This industry comprises establishments primarily engaged in the manufacture of machines and equipment, not elsewhere classified, for use in service industries, such as floor sanding machines, industrial vacuum cleaners, scrubbing machines, commercial cooking and food warming equipment, and commercial dishwashing machines. Establishments primarily engaged in the manufacture of household electrical appliances are classified in industry group 363.

In the 1982 Census of Manufactures, Industry 3589, Service Industry Machinery, N.E.C., recorded employment of 31.0 thousand. The total value of shipments for establishments classified in this industry was \$2,583 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 3 percent below the 32.1 thousand reported in 1977. The leading States in employment in 1982 were Illinois, California, Minnesota, and Ohio, accounting for approximately 43 percent of the industry's 1982 employment. These same States were the leaders in 1977, when they accounted for approximately 45 percent of the industry's employment.

Compared with 1981, employment decreased 11 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3589 shipped \$2,254 million of products primary to the industry, \$174 million of secondary products, and had \$156 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 93 percent (specialization ratio). In 1977, this specialization ratio was 91 percent.

Establishments in this industry also accounted for 88 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio also was 90 percent. The products primary to industry 3589, no matter in what industry they were produced, appear in table 6a and aggregate to \$2,550 million in current prices.

The total cost of materials and services used by establishments classified in the service industry machinery, n.e.c., industry amounted to \$1,235 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the

time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of total value of shipments.

INDUSTRY 3592, CARBURETORS, PISTONS, RINGS, AND VALVES

This industry comprises establishments primarily engaged in the manufacture of carburetors, pistons, piston rings, and valves. Establishments primarily engaged in the manufacture of metallic packing are classified in industry 3293; and those primarily engaged in the manufacture or repair of machine equipment parts (except electric), on a job or order basis, for others in industry 3599.

In the 1982 Census of Manufactures, Industry 3592, Carburetors, Pistons, Rings, and Valves, recorded employment of 31.2 thousand. The total value of shipments for establishments classified in this industry was \$2,225 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 3 percent below the 32.2 thousand reported in 1977. The leading States in employment in 1982 were Michigan, New York, Kentucky, and Indiana, accounting for approximately 50 percent of the industry's 1982 employment. Data for Kentucky and New York have been withheld to avoid disclosing data for individual companies. This represents a shift from 1977 when New York, Michigan, Missouri, and Indiana accounted for approximately 55 percent of the industry's employment.

Compared with 1981, employment decreased 5 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3592 shipped \$1,791 million of products primary to the industry, \$407 million of secondary products, and had \$27 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 81 percent (specialization ratio). In 1977, this specialization ratio was 82 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 87 percent. The products primary to industry 3592, no matter in what industry they were produced, appear in table 6a and aggregate to \$1,908 million in current prices.

The total cost of materials and services used by establishments classified in the carburetors, pistons, rings, and valves industry amounted to \$796 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the

time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of total value of shipments.

INDUSTRY 3599, MACHINERY, EXCEPT ELECTRICAL, N.E.C.

This industry comprises establishments primarily engaged in the manufacture of machinery and parts except electrical, not elsewhere classified, such as amusement park equipment, pneumatic and hydraulic cylinders, and flexible metal hose and tubing. This industry also includes establishments primarily engaged in producing or repairing machine and equipment parts, not elsewhere classified, on a job or order basis for others. Establishments primarily engaged in the manufacture of metallic packing, formerly classified in this industry, are classified in industry 3293.

In the 1982 Census of Manufactures, Industry 3599, Machinery, Except Electrical, N.E.C., recorded employment of 250.9 thousand. The total value of shipments for Establishments classified in this industry was \$12,271 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 24 percent above the 190.5 thousand reported in 1977. The leading States in employment in 1982 were California, Texas, Illinois, and Ohio, accounting for approximately 40 percent of the industry's 1982 employment. Data for Ohio have been withheld to avoid disclosing data for individual companies. These same States were the leaders in 1977, when they accounted for approximately 40 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Compared with 1981, employment decreased 6 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3599 shipped \$11,004 million of products primary to the industry, \$483 million of secondary products, and had \$785 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 96 percent (specialization ratio). In 1977, this specialization ratio also was 96 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio also was 94 percent. The products primary to industry 3599, no matter in what industry they were produced, appear in table 6a and aggregate to \$11,698 million in current prices.

The total cost of materials and services used by establishments classified in the machinery, except electrical, n.e.c., industry amounted to \$3,820 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the

time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 32 percent of total value of shipments.

Table 1a. Historical Statistics for the Industry: 1982 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year ¹	All establishments ³			All employees		Production workers			Value added by manufacture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories ⁴ (million dollars)	Ratios	
	Companies ² (no.)	Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization (per-cent)	Coverage (per-cent)
INDUSTRY 3581, AUTOMATIC MERCHANDISING MACHINES															
1982 Census	88	92	36	7.4	123.3	5.1	9.8	72.3	215.0	267.1	479.4	13.1	118.2	93	98
1981 ASM	(NA)	(NA)	(NA)	8.7	137.5	6.0	11.8	83.9	253.6	315.6	576.4	⁵ 12.7	120.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	8.9	127.3	6.3	12.0	77.4	211.2	294.8	501.3	⁵ 16.8	127.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.2	123.0	6.8	13.2	78.4	226.6	281.3	504.7	⁵ 13.1	120.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	9.4	116.0	6.9	13.4	73.0	222.3	258.6	482.6	⁵ 8.8	114.6	(NA)	(NA)
1977 Census	106	113	35	8.8	103.2	6.4	12.4	65.1	211.7	214.5	410.1	7.9	109.6	94	93
1976 ASM	(NA)	(NA)	(NA)	8.2	88.9	5.8	10.8	54.0	155.7	184.7	337.6	7.3	96.0	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	7.1	66.1	4.4	8.1	35.3	107.4	144.1	264.3	7.0	86.9	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	10.5	93.5	7.4	13.9	57.1	188.1	190.2	370.7	8.9	124.4	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	10.7	89.7	8.1	15.1	58.8	169.0	154.2	325.2	9.3	97.2	(NA)	(NA)
1972 Census	116	125	48	10.5	83.6	7.3	13.9	52.1	183.4	152.3	324.4	5.6	89.0	94	96
1971 ASM	(NA)	(NA)	(NA)	10.5	81.8	7.6	13.8	50.2	165.2	142.9	300.7	3.5	83.0	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	9.0	61.7	6.3	11.4	38.2	129.4	117.0	247.3	3.5	61.8	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	11.1	71.5	8.4	15.8	47.6	150.2	133.4	285.1	3.3	68.3	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	10.4	62.4	8.1	15.9	42.1	125.0	131.1	271.3	4.3	63.0	(NA)	(NA)
1967 Census	143	150	56	10.0	59.2	7.8	14.8	39.6	140.8	122.5	248.0	5.5	77.8	97	88
INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT															
1982 Census	86	87	45	4.7	83.0	3.2	6.4	49.6	170.0	147.8	321.0	4.9	64.1	96	87
1981 ASM	(NA)	(NA)	(NA)	4.8	76.3	3.8	7.3	50.6	154.7	159.3	308.5	⁵ 3.0	57.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	5.1	72.8	3.9	7.5	46.0	134.5	163.1	295.2	⁵ 8.3	56.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	5.6	74.9	4.2	8.4	49.2	126.3	173.5	293.6	⁵ 10.7	53.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	5.2	66.3	3.9	7.4	41.7	126.5	128.1	247.9	⁵ 3.8	61.6	(NA)	(NA)
1977 Census	90	94	38	4.6	54.4	3.3	6.4	35.6	117.3	104.9	220.3	2.2	53.5	90	81
1976 ASM	(NA)	(NA)	(NA)	3.4	40.9	2.4	5.2	27.2	92.5	84.2	178.6	1.5	51.5	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	3.4	36.1	2.3	4.6	22.9	83.8	71.8	160.5	1.3	48.2	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	4.5	46.3	3.3	7.2	30.7	92.1	89.5	172.1	4.6	63.1	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	5.1	44.4	3.5	7.1	26.5	101.6	89.3	188.5	1.3	45.6	(NA)	(NA)
1972 Census ⁶	100	107	47	4.8	42.2	3.4	6.7	25.4	88.2	68.9	157.0	1.2	36.6	91	70
INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT															
1982 Census	731	865	496	120.5	2 393.2	85.0	159.3	1 532.6	6 049.4	6 190.6	12 390.3	329.3	2 141.9	92	96
1981 ASM	(NA)	(NA)	(NA)	137.0	2 532.2	98.7	192.7	1 639.4	6 210.4	7 012.0	13 125.7	400.6	2 038.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	130.0	2 240.6	93.6	182.9	1 442.5	5 383.9	6 023.9	11 587.4	367.0	1 860.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	148.8	2 323.8	111.5	216.8	1 575.4	5 857.7	6 596.2	12 273.1	297.4	2 101.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	148.5	2 154.4	112.9	214.3	1 476.7	5 323.6	6 051.0	11 217.0	292.9	1 882.2	(NA)	(NA)
1977 Census	725	860	457	138.6	1 849.7	104.4	205.4	1 270.2	4 469.2	5 235.7	9 638.1	233.0	1 632.7	89	95
1976 ASM	(NA)	(NA)	(NA)	131.3	1 653.1	97.3	189.7	1 106.2	4 097.2	4 589.7	8 572.4	144.3	1 533.1	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	118.5	1 359.6	84.1	158.8	859.4	2 999.3	3 554.8	6 765.9	154.5	1 350.7	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	156.8	1 637.5	116.8	223.7	1 089.7	3 727.0	4 371.9	7 972.6	227.0	1 794.5	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	165.2	1 646.4	122.8	241.8	1 105.2	3 896.0	4 338.7	8 089.2	213.4	1 621.7	(NA)	(NA)
1972 Census ⁶	655	774	443	150.8	1 442.1	112.6	223.5	978.6	3 517.4	3 714.9	7 083.5	201.2	1 330.6	(NA)	(NA)
INDUSTRY 3586, MEASURING AND DISPENSING PUMPS															
1982 Census	58	61	35	8.1	160.0	5.2	9.9	86.9	365.1	299.7	676.2	12.8	157.2	86	93
1981 ASM	(NA)	(NA)	(NA)	6.4	114.6	4.5	8.6	69.1	324.3	223.7	549.0	11.5	121.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	7.2	122.2	5.1	9.7	74.2	338.3	227.6	539.5	16.6	123.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	6.9	106.7	4.8	9.2	64.3	259.2	198.6	448.6	9.9	105.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	6.7	95.6	4.7	8.8	57.4	222.3	174.2	392.1	9.0	91.8	(NA)	(NA)
1977 Census	57	59	30	7.4	97.3	5.1	9.7	57.9	218.0	158.2	375.7	6.2	97.9	61	82
1976 ASM	(NA)	(NA)	(NA)	7.4	89.6	5.2	10.1	53.7	220.3	135.1	347.6	7.4	92.5	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	7.5	85.5	5.2	10.1	50.4	198.2	132.2	330.9	7.1	88.2	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	7.7	79.3	5.6	10.6	50.4	176.4	128.1	297.4	5.2	88.3	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	7.0	68.1	4.8	9.6	41.9	130.7	94.5	222.2	4.2	69.5	(NA)	(NA)
1972 Census	54	57	33	7.2	67.3	5.0	9.9	38.7	134.1	101.1	232.3	4.5	64.2	71	87
1971 ASM	(NA)	(NA)	(NA)	6.4	56.5	4.4	8.7	30.5	114.6	88.3	202.7	2.5	58.9	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	7.2	57.8	5.0	9.7	31.5	122.0	92.0	209.0	4.3	58.3	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	6.9	55.4	4.8	9.8	30.3	119.5	87.8	204.7	4.3	49.4	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	6.6	47.1	4.5	9.1	26.7	104.5	86.3	188.0	6.6	44.7	(NA)	(NA)
1967 Census	46	49	23	6.4	45.6	4.3	8.9	25.1	94.8	81.0	174.7	3.8	43.7	71	80
INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.															
1982 Census	791	832	287	31.0	584.0	17.8	33.5	283.0	1 321.3	1 235.4	2 583.0	54.6	516.6	93	88
1981 ASM	(NA)	(NA)	(NA)	34.7	605.7	21.8	41.0	309.1	1 347.9	1 254.7	2 571.4	63.7	499.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	35.1	552.2	22.2	42.6	282.9	1 242.2	1 172.9	2 416.3	⁵ 72.4	459.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	35.4	499.4	22.1	42.9	257.0	1 123.1	1 035.9	2 125.7	58.2	444.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	32.7	445.6	19.6	38.0	222.0	1 008.5	946.4	1 949.8	43.4	389.8	(NA)	(NA)
1977 Census	959	988	277	32.1	411.8	19.2	36.9	208.6	946.4	849.3	1 771.8	38.5	365.9	91	90
1976 ASM	(NA)	(NA)	(NA)	22.5	279.1	14.0	27.0	142.3	648.1	593.6	1 224.0	22.7	254.0	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	21.2	243.3	12.7	23.8	120.8	504.0	522.7	1 045.3	16.8	210.4	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	22.1	235.5	14.0	27.0	122.6	531.7	476.3	993.6	27.9	230.9	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	25.0	249.5	15.2	30.5	129.5	548.5	468.2	993.5	17.8	213.6	(NA)	(NA)
1972 Census	666	706	232	24.4	228.8	15.0	29.3	115.9	503.6	422.8	913.8	15.7	184.4	90	87
1971 ASM	(NA)	(NA)	(NA)	22.8	199.7	13.6	26.4	96.2	429.4	395.7	823.2	24.9	156.7	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	22.8	186.7	13.3	26.4	93.8	394.0	335.5	726.7	17.1	147.2	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	25.2	201.6	16.7	34.2	110.5	427.2	346.2	765.8	15.2	147.0	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	22.9	170.6	14.8	29.3	91.6	358.9	318.6	675.6	11.5	123.0	(NA)	(NA)
1967 Census	554	575	187	20.9	150.7	13.5	27.2	82.4	313.3	290.7	598.1	10.6	114.7	89	88

See footnotes at end of table.

Table 1a. Historical Statistics for the Industry: 1982 and Earlier Years—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year ¹	Companies ² (no.)	All establishments ³		All employees		Production workers			Value added by manufacture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories ⁴ (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization (percent)	Coverage (percent)
INDUSTRY 3592, CARBURETORS, PISTONS, RINGS, AND VALVES															
1982 Census -----	149	171	94	31.2	691.9	24.0	46.0	492.4	1 385.1	795.6	2 224.5	106.0	353.5	81	94
1981 ASM -----	(NA)	(NA)	(NA)	32.9	692.8	26.4	50.8	514.8	1 363.9	765.7	2 130.9	137.8	369.7	(NA)	(NA)
1980 ASM -----	(NA)	(NA)	(NA)	32.5	628.8	25.8	49.3	463.5	1 178.7	673.9	1 838.8	113.9	358.0	(NA)	(NA)
1979 ASM -----	(NA)	(NA)	(NA)	36.2	661.6	29.4	58.9	504.4	1 295.7	666.7	1 904.1	116.2	343.4	(NA)	(NA)
1978 ASM -----	(NA)	(NA)	(NA)	33.3	556.5	26.8	53.3	423.5	1 069.4	564.2	1 608.5	120.2	260.5	(NA)	(NA)
1977 Census -----	132	151	84	32.2	508.5	26.0	52.5	388.5	924.9	503.8	1 400.6	79.9	240.0	82	87
1976 ASM -----	(NA)	(NA)	(NA)	31.1	453.2	24.9	49.8	347.2	841.4	444.4	1 256.3	38.6	204.1	(NA)	(NA)
1975 ASM -----	(NA)	(NA)	(NA)	29.6	374.4	23.6	44.4	272.9	637.9	365.4	1 009.0	30.6	173.3	(NA)	(NA)
1974 ASM -----	(NA)	(NA)	(NA)	31.9	378.8	25.8	50.8	284.1	625.0	368.5	977.3	29.7	175.3	(NA)	(NA)
1973 ASM -----	(NA)	(NA)	(NA)	32.5	371.2	26.5	54.0	284.5	669.5	359.6	1 017.6	73.5	152.6	(NA)	(NA)
1972 Census ⁶ -----	98	113	72	26.7	272.3	21.6	43.5	207.1	500.0	262.3	744.3	27.1	112.4	81	74
INDUSTRY 3599, MACHINERY, EXCEPT ELECTRICAL, N.E.C.															
1982 Census -----	21 903	22 075	3 099	250.9	4 543.1	196.8	390.3	3 201.2	8 420.5	3 820.3	12 271.4	660.7	1 641.4	96	94
1981 ASM -----	(NA)	(NA)	(NA)	267.3	4 653.2	216.2	440.5	3 299.0	8 812.9	4 163.2	12 872.7	754.7	1 596.5	(NA)	(NA)
1980 ASM -----	(NA)	(NA)	(NA)	269.8	4 198.6	216.7	434.3	2 966.2	7 715.5	3 855.1	11 498.3	711.4	1 391.6	(NA)	(NA)
1979 ASM -----	(NA)	(NA)	(NA)	250.6	3 602.4	203.3	416.1	2 561.3	6 824.1	3 360.8	9 980.5	690.5	1 288.5	(NA)	(NA)
1978 ASM -----	(NA)	(NA)	(NA)	214.4	2 932.5	171.7	332.7	2 016.8	5 426.2	2 756.6	8 056.2	517.7	1 021.6	(NA)	(NA)
1977 Census -----	19 136	19 247	2 499	190.5	2 472.2	150.9	298.0	1 716.7	4 439.1	2 234.2	6 612.7	340.7	822.5	96	94
1976 ASM -----	(NA)	(NA)	(NA)	177.9	2 076.3	142.8	283.3	1 477.5	3 894.1	1 798.2	5 674.2	263.5	673.7	(NA)	(NA)
1975 ASM -----	(NA)	(NA)	(NA)	185.7	2 000.5	149.4	294.2	1 433.6	3 639.4	1 763.9	5 420.2	305.7	647.9	(NA)	(NA)
1974 ASM -----	(NA)	(NA)	(NA)	190.2	1 936.1	155.8	312.3	1 416.6	3 632.0	1 775.5	5 319.9	215.9	621.2	(NA)	(NA)
1973 ASM -----	(NA)	(NA)	(NA)	167.9	1 589.8	138.0	272.6	1 158.4	2 933.0	1 361.4	4 235.4	144.2	475.5	(NA)	(NA)
1972 Census ⁸ -----	16 217	16 287	1 946	157.8	1 424.7	127.2	248.4	1 021.3	2 515.5	1 175.1	3 665.2	122.2	416.2	93	94

¹In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1967, see 1967 Census of Manufactures, vol. II, table 1 of the Industry chapter.

²For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

³Includes establishments with payroll at any time during year.

⁴Effective with the 1982 Economic Censuses, uniform instructions for reporting inventories were introduced for all sector reports. Up to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown above and in historical census of manufactures and annual survey of manufactures publications. Inventories and value added data estimated on a basis comparable to the historical data, using the reported information for 1982, are shown below:

Industries	End-of-1981 inventories (million dollars)	End-of-1982 inventories (million dollars)	1982 value added by manufacture (million dollars)
Industry 3581, Automatic merchandising machines	102.3	102.0	213.9
Industry 3582, Commercial laundry equipment	58.1	52.3	170.7
Industry 3585, Refrigeration and heating equipment	1 942.6	1 720.1	6 077.7
Industry 3586, Measuring and dispensing pumps	149.4	136.6	366.3
Industry 3589, Service industry machinery, n.e.c.	506.9	473.6	1 321.2
Industry 3592, Carburetors, pistons, rings, and valves	360.1	323.1	1 381.5
Industry 3599, Machinery, except electrical, n.e.c.	1 642.9	1 603.2	8 436.7

See Inventories in appendixes for explanation of the difference between end-of-1981 inventory figure shown in table and corresponding figure shown in footnote.

⁸Estimate for new capital expenditures has associated standard error of 15 percent or more and may be of limited reliability. Estimates for other data items are of acceptable reliability.

⁹Industry was defined or redefined for 1972 Census of Manufactures, so data are available only for years shown.

Table 1b. Selected Operating Ratios for the Industry: 1982 and Earlier Years

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3581, AUTOMATIC MERCHANDISING MACHINES									
1982 Census	16 662	69	1 922	7.38	56	81	29 054	57	21.94
1981 ASM	15 805	69	1 967	7.11	55	79	29 149	54	21.49
1980 ASM	14 303	71	1 905	6.45	59	84	23 730	60	17.60
1979 ASM	13 370	74	1 941	5.94	56	80	24 630	54	17.17
1978 ASM	12 340	73	1 942	5.45	54	78	23 649	52	16.59
1977 Census	11 727	73	1 938	5.25	52	77	24 057	49	17.07
1976 ASM	10 841	71	1 862	5.00	55	81	18 988	57	14.42
1975 ASM	9 310	62	1 841	4.36	55	80	15 127	62	13.26
1974 ASM	8 905	70	1 878	4.11	51	77	17 914	50	13.53
1973 ASM	8 383	76	1 864	3.89	47	75	15 794	53	11.19
1972 Census	7 962	70	1 904	3.75	47	73	17 467	46	13.19
1971 ASM	7 790	72	1 816	3.84	48	75	15 733	50	11.97
1970 ASM	8 858	70	1 810	3.35	47	72	14 378	48	11.35
1969 ASM	8 441	76	1 881	3.01	47	72	13 532	48	9.51
1968 ASM	8 000	78	1 963	2.85	48	71	12 019	50	7.86
1967 Census	5 920	78	1 897	2.68	49	73	14 080	42	9.51

See footnotes at end of table.

Table 1b. Selected Operating Ratios for the Industry: 1982 and Earlier Years—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT									
1982 Census	17 660	68	2 000	7.75	46	72	36 170	49	26.56
1981 ASM	15 896	75	2 028	6.93	52	76	32 229	49	21.19
1980 ASM	14 275	76	1 923	6.13	55	80	26 373	54	17.93
1979 ASM	13 375	75	2 000	5.86	59	85	22 554	59	15.04
1978 ASM	12 750	75	1 897	5.64	52	78	24 327	52	17.09
1977 Census	11 826	72	1 939	5.56	48	72	25 500	46	18.33
1976 ASM	12 029	71	2 167	5.23	47	70	27 206	44	17.79
1975 ASM	10 618	68	2 000	4.98	45	67	24 647	43	18.22
1974 ASM	10 289	73	2 182	4.26	52	79	20 467	50	12.79
1973 ASM	8 706	69	2 029	3.73	47	71	19 922	44	14.31
1972 Census	8 792	71	1 971	3.79	44	71	18 375	48	13.16
INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT									
1982 Census	19 861	71	1 874	9.62	50	69	50 202	40	37.97
1981 ASM	18 483	72	1 952	8.51	53	73	45 320	41	32.22
1980 ASM	17 235	72	1 954	7.89	52	71	41 415	42	29.44
1979 ASM	15 617	75	1 944	7.27	54	73	39 366	40	27.02
1978 ASM	14 508	76	1 898	6.89	54	73	35 849	40	24.84
1977 Census	13 346	75	1 967	6.18	54	74	32 245	41	21.76
1976 ASM	12 590	74	1 950	5.83	54	73	31 205	40	21.60
1975 ASM	11 473	71	1 888	5.41	53	73	25 311	45	18.89
1974 ASM	10 443	74	1 915	4.87	55	75	23 769	44	16.66
1973 ASM	9 966	74	1 969	4.57	54	74	23 584	42	16.11
1972 Census	9 563	75	1 985	4.38	52	73	23 325	41	15.74
INDUSTRY 3586, MEASURING AND DISPENSING PUMPS									
1982 Census	19 753	64	1 904	8.78	44	68	45 074	44	36.88
1981 ASM	17 906	70	1 911	8.03	41	62	50 672	35	37.71
1980 ASM	16 972	71	1 902	7.65	42	65	46 986	36	34.88
1979 ASM	15 464	70	1 917	6.99	44	68	37 565	41	28.17
1978 ASM	14 269	70	1 872	6.52	44	69	33 179	43	25.26
1977 Census	13 149	69	1 902	5.97	42	68	29 459	45	22.47
1976 ASM	12 108	70	1 942	5.32	39	65	29 770	41	21.81
1975 ASM	11 400	69	1 942	4.99	40	66	26 427	43	19.62
1974 ASM	10 299	73	1 893	4.75	43	70	22 909	45	16.64
1973 ASM	9 729	69	2 000	4.36	43	73	18 671	52	13.61
1972 Census	9 347	69	1 980	3.91	44	72	18 625	50	13.55
1971 ASM	8 828	69	1 977	3.51	44	71	17 906	49	13.17
1970 ASM	8 028	69	1 940	3.25	44	72	16 944	47	12.58
1969 ASM	8 029	70	2 042	3.09	43	70	17 319	46	12.19
1968 ASM	7 136	68	2 022	2.93	46	71	15 833	45	11.48
1967 Census	7 125	67	2 070	2.82	46	72	14 813	48	10.65
INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.									
1982 Census	18 839	57	1 882	8.45	48	70	42 623	44	39.44
1981 ASM	17 455	63	1 881	7.54	49	72	38 741	45	32.79
1980 ASM	15 732	63	1 919	6.64	49	71	35 390	44	29.16
1979 ASM	14 107	62	1 941	5.99	49	72	31 726	44	26.18
1978 ASM	13 627	60	1 939	5.84	49	71	30 841	44	26.54
1977 Census	12 829	60	1 922	5.65	48	71	29 483	44	25.65
1976 ASM	12 404	62	1 929	5.27	48	71	28 804	43	24.00
1975 ASM	11 476	60	1 874	5.08	50	73	23 774	48	21.18
1974 ASM	10 656	63	1 929	4.54	48	72	24 059	44	19.69
1973 ASM	9 980	61	2 007	4.25	47	72	21 940	45	17.98
1972 Census	9 377	61	1 953	3.96	46	71	20 639	45	17.19
1971 ASM	8 759	60	1 941	3.64	48	72	18 833	47	16.27
1970 ASM	8 189	58	1 985	3.55	46	72	17 281	47	14.92
1969 ASM	8 000	66	2 048	3.23	45	72	16 952	47	12.49
1968 ASM	7 450	65	1 980	3.13	47	72	15 672	48	12.25
1967 Census	7 211	65	2 015	3.03	49	74	14 990	48	11.52
INDUSTRY 3592, CARBURETORS, PISTONS, RINGS, AND VALVES									
1982 Census	22 176	77	1 917	10.70	36	67	44 394	50	30.11
1981 ASM	21 058	80	1 924	10.13	36	68	41 456	51	26.85
1980 ASM	19 348	79	1 926	9.40	37	71	36 268	53	23.91
1979 ASM	18 276	81	2 003	8.56	35	70	35 793	51	22.00
1978 ASM	16 712	80	1 989	7.95	35	70	32 114	52	20.06
1977 Census	15 792	81	2 019	7.40	36	72	28 724	55	17.62
1976 ASM	14 572	80	2 000	6.97	35	71	27 055	54	16.90
1975 ASM	12 649	80	1 881	6.15	36	73	21 551	59	14.37
1974 ASM	11 875	81	1 969	5.59	38	76	19 592	61	12.30
1973 ASM	11 422	82	2 038	5.27	35	72	20 600	55	12.40
1972 Census	10 189	81	2 014	4.76	35	72	18 727	54	11.49
INDUSTRY 3599, MACHINERY, EXCEPT ELECTRICAL, N.E.C.									
1982 Census	18 107	78	1 983	8.20	31	68	33 561	54	21.57
1981 ASM	17 408	81	2 037	7.49	32	68	32 970	53	20.01
1980 ASM	15 582	80	2 004	6.83	34	70	28 597	54	17.77
1979 ASM	14 375	81	2 047	6.18	34	70	27 231	53	16.40
1978 ASM	13 878	80	1 938	8.08	34	71	25 309	54	16.31

See footnotes at end of table.

Table 1b. Selected Operating Ratios for the Industry: 1982 and Earlier Years—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3599, MACHINERY, EXCEPT ELECTRICAL, N.E.C.—Con.									
1977 Census.....	12 975	79	1 976	5.76	34	71	23 294	56	14.89
1976 ASM.....	11 671	80	1 984	5.22	32	68	21 889	53	13.75
1975 ASM.....	10 773	80	1 969	4.87	33	69	19 598	55	12.37
1974 ASM.....	10 179	82	2 004	4.54	33	70	19 096	53	11.63
1973 ASM.....	9 469	82	1 975	4.25	32	70	17 469	54	10.76
1972 Census.....	9 029	81	1 953	4.11	32	71	15 941	57	10.13

Note: For qualifications of data, see footnotes on table 1a.

Table 2. Industry Statistics for Selected States: 1982 and 1977

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982												1977	
	E ¹	All establishments ²		All employees		Production workers			Value added by manufacture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees ³ (1,000)	Value added by manufacture (million dollars)
		Total (no.)	With 20 employees or more (no.)	Number ³ (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
INDUSTRY 3581, AUTOMATIC MERCHANDISING MACHINES														
United States	-	92	36	7.4	123.3	5.1	9.8	72.3	215.0	267.1	479.4	13.1	8.8	211.7
Arkansas	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
California	-	15	4	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	11.5
Illinois	E2	10	4	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Iowa	-	3	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Minnesota	-	3	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Missouri	-	7	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
New Jersey	-	6	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
New York	E1	8	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Pennsylvania	-	8	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Tennessee	-	3	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	-	4	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
West Virginia	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT														
United States	-	87	45	4.7	83.0	3.2	6.4	49.6	170.0	147.8	321.0	4.9	4.6	117.3
Florida	-	4	3	.3	5.2	.2	.5	3.0	11.3	13.8	25.1	(D)	(NA)	(NA)
Illinois	E3	14	7	.3	5.4	.2	.5	3.2	10.4	8.1	18.4	(D)	.3	7.6
Iowa	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Kentucky	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Louisiana	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Massachusetts	E3	4	4	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
New Jersey	-	4	3	.2	4.0	.2	.3	2.3	9.2	6.7	15.7	(D)	.2	4.9
New York	-	5	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	6.4
Ohio	-	5	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Texas	E1	6	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	15.4
INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT														
United States	-	865	496	120.5	2 393.2	85.0	159.3	1 532.6	6 049.4	6 190.6	12 390.3	329.3	138.6	4 469.2
Alabama	-	14	11	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.6	31.0
Arizona	E1	11	8	1.8	28.8	1.1	2.3	15.2	56.2	55.3	118.7	(D)	1.2	17.2
Arkansas	-	11	7	2.2	36.3	1.7	3.1	25.3	82.3	102.8	190.8	2.7	3.2	93.2
California	E2	93	39	3.4	67.2	2.6	4.8	45.5	221.1	194.5	421.1	8.3	4.3	108.5
Colorado	E2	10	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	8.6
Connecticut	-	12	6	1.1	22.3	.6	1.4	12.7	43.9	41.1	85.0	1.7	.7	23.2
Delaware	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	E2	43	13	1.0	14.0	.7	1.3	8.8	31.8	37.9	70.2	2.7	.7	18.4
Georgia	-	17	13	2.5	43.5	1.9	4.0	28.9	110.8	123.3	239.7	6.6	.8	24.1
Illinois	E2	45	29	5.4	105.3	3.8	7.3	64.0	225.0	255.7	485.8	9.5	7.0	193.6
Indiana	-	23	14	4.5	93.8	3.4	5.9	63.6	233.7	296.5	538.9	15.9	5.2	164.5
Iowa	-	5	4	1.1	22.7	.7	1.4	13.6	58.6	47.3	107.6	.8	1.4	40.5
Kansas	-	8	6	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Kentucky	-	12	9	6.2	120.5	5.1	8.7	90.4	279.4	346.8	632.5	27.2	7.9	215.3
Maine	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	-	12	8	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Massachusetts	E1	15	12	.7	13.1	.5	.9	7.2	26.1	25.4	52.1	.9	.8	18.5
Michigan	-	40	25	5.7	116.9	3.9	7.3	71.3	190.1	352.8	546.5	17.7	7.5	212.7
Minnesota	-	23	15	3.4	74.2	2.0	3.8	40.1	125.2	166.2	296.6	7.1	4.4	160.4
Mississippi	E4	8	6	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)

See footnotes at end of table.

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982												1977	
	E ¹	All establishments ²		All employees		Production workers			Value added by manufacture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees ³ (1,000)	Value added by manufacture (million dollars)
		Total (no.)	With 20 employees or more (no.)	Number ³ (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT—Con.														
Missouri	E1	23	15	4.3	70.5	2.7	4.8	38.9	154.7	165.8	324.2	5.5	4.3	90.4
New Jersey	-	36	21	4.1	80.3	2.9	5.6	52.1	170.6	220.5	411.1	7.2	6.0	116.5
New York	-	72	35	13.0	339.6	9.9	19.3	244.1	1 115.9	809.4	1 931.4	24.0	FF	(D)
North Carolina	E2	18	12	1.6	26.5	1.2	2.3	16.0	56.8	68.1	121.6	8.5	.4	12.3
Ohio	-	43	28	12.7	300.0	9.3	17.9	207.4	626.7	741.6	1 375.8	41.8	20.9	693.9
Oklahoma	-	12	8	1.1	19.7	.8	1.6	11.8	92.7	48.7	134.3	4.5	1.3	34.0
Oregon	E4	8	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Pennsylvania	-	51	28	7.3	157.3	4.4	8.8	82.5	356.5	295.0	636.1	7.5	7.4	151.8
South Carolina	-	6	4	1.0	15.6	.8	1.6	10.1	56.1	43.3	92.6	(D)	CC	(D)
South Dakota	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	-	22	15	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	8.6	319.1
Texas	E1	98	60	9.9	164.4	6.9	11.8	94.2	624.7	514.0	1 157.2	30.4	10.9	348.7
Utah	E2	4	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	11.9
Virginia	E2	10	8	2.3	39.7	1.5	2.5	21.9	62.7	109.6	174.3	5.3	2.0	35.0
Washington	E3	10	4	.3	7.4	.2	.4	4.9	12.9	16.6	29.7	(D)	.4	9.5
Wisconsin	-	29	17	6.8	140.0	3.4	7.0	65.1	241.1	239.8	488.6	20.7	6.3	158.9
INDUSTRY 3586, MEASURING AND DISPENSING PUMPS														
United States	-	61	35	8.1	160.0	5.2	9.9	86.9	365.1	299.7	876.2	12.8	7.4	218.0
California	-	6	4	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Illinois	-	3	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Indiana	-	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Iowa	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Maryland	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Massachusetts	-	4	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Michigan	-	5	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Minnesota	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
North Carolina	-	2	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Ohio	-	7	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Tennessee	-	3	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	-	2	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Vermont	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.														
United States	E1	832	287	31.0	584.0	17.8	33.5	283.0	1 321.3	1 235.4	2 583.0	54.6	32.1	946.4
Alabama	E1	7	5	.4	8.7	.2	.4	3.1	16.3	19.5	34.8	(D)	BB	(D)
Arizona	E1	15	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	E2	11	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
California	E1	132	45	4.1	76.7	2.2	4.2	37.3	162.9	145.3	317.1	(D)	4.0	106.1
Colorado	E3	15	6	.4	8.1	.3	.5	4.4	18.0	16.1	34.0	.4	.3	8.4
Connecticut	E3	10	6	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Florida	-	42	9	.9	14.1	.6	1.1	7.7	28.5	31.0	59.9	(D)	.6	16.3
Georgia	E1	8	4	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Illinois	-	74	35	4.5	88.1	2.6	4.7	43.2	199.4	201.4	407.4	5.7	5.1	162.8
Indiana	-	18	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Iowa	E1	10	3	.3	6.4	.2	.3	2.9	15.0	11.2	26.1	.3	.4	10.2
Kansas	-	6	4	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	-	7	4	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Louisiana	-	9	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Maryland	-	3	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Massachusetts	-	19	7	.9	18.2	.5	.9	8.7	42.9	26.8	72.0	1.3	1.2	35.2
Michigan	-	32	8	1.5	31.7	1.0	1.9	16.8	73.1	76.3	147.1	2.4	EE	(D)
Minnesota	-	26	8	2.8	58.1	1.2	2.1	20.2	109.0	85.5	192.8	3.7	2.6	86.3
Missouri	E3	25	11	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	19.8
Nevada	-	4	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	-	37	17	1.5	34.1	.9	1.8	15.1	81.7	75.9	158.8	4.8	1.3	34.0
New York	E2	47	12	1.1	16.8	.8	1.4	9.4	33.0	37.5	71.5	6.2	.7	20.8
North Carolina	-	17	6	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Ohio	E1	53	19	2.0	35.6	1.2	2.4	18.0	84.8	70.6	159.6	2.3	EE	(D)
Oregon	-	12	3	.4	8.5	.2	.4	5.3	18.2	17.0	34.4	.2	BB	(D)
Pennsylvania	-	35	13	1.9	35.5	1.1	2.0	18.2	71.6	81.9	156.1	2.2	2.3	56.4
Tennessee	E6	9	4	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Texas	E2	40	9	.7	13.3	.4	.8	6.1	25.8	34.1	59.0	2.6	1.3	28.4
Vermont	-	3	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Virginia	E1	10	6	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	6.0
Washington	E2	12	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	-	34	18	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Wyoming	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982											1977		
	All establishments ²		All employees		Production workers			Value added by manufacture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees ³ (1,000)	Value added by manufacture (million dollars)	
	E ¹	Total (no.)	With 20 employees or more (no.)	Number ³ (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)							Wages (million dollars)
INDUSTRY 3592, CARBURETORS, PISTONS, RINGS, AND VALVES														
United States	-	171	94	31.2	691.9	24.0	46.0	492.4	1 385.1	795.6	2 224.5	106.0	32.2	924.9
Arkansas	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
California	E4	39	15	1.0	15.4	.8	1.6	11.1	31.1	21.1	52.7	3.2	1.2	25.6
Illinois	E1	9	4	1.0	20.5	.7	1.4	14.7	28.6	18.6	49.6	1.2	BB	(D)
Indiana	-	5	5	2.3	54.4	1.8	3.5	42.5	66.0	48.7	112.0	1.6	FF	(D)
Kentucky	-	5	4	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.5	52.0
Maryland	-	2	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Michigan	-	14	8	5.5	152.1	4.1	8.2	110.3	278.7	179.7	460.7	42.5	4.9	136.7
Minnesota	-	4	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Mississippi	-	4	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Missouri	-	6	5	2.0	41.2	1.2	2.3	23.2	52.5	30.4	85.6	4.2	4.4	88.7
Nebraska	-	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Nevada	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	-	10	3	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
North Carolina	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Ohio	-	10	6	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Oklahoma	-	4	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	-	7	5	1.1	20.8	.9	1.6	15.6	42.8	22.4	63.0	1.3	EE	(D)
Tennessee	-	5	4	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Texas	E5	9	7	.4	6.2	.3	.6	3.9	13.7	7.0	20.9	.8	.2	5.3
Wisconsin	-	6	5	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	29.9
INDUSTRY 3599, MACHINERY, EXCEPT ELECTRICAL, N.E.C.														
United States	E3	22 075	3 099	250.9	4 543.1	196.8	390.3	3 201.2	8 420.5	3 820.3	12 271.4	660.7	-	-
Alabama	E3	281	42	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.3	48.3
Alaska	E7	20	2	.2	4.4	.2	.3	3.5	8.5	3.5	12.1	.6	(NA)	(NA)
Arizona	E2	260	33	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.4	50.5
Arkansas	E4	125	10	.8	11.3	.7	1.4	8.7	22.6	12.1	34.9	(D)	.6	13.5
California	E3	3 905	434	39.6	778.1	30.4	61.1	531.3	1 537.9	596.3	2 135.7	104.0	27.1	663.2
Colorado	E4	296	38	3.0	50.2	2.4	4.7	37.2	88.2	41.6	131.0	5.3	2.3	46.4
Connecticut	E2	615	98	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Delaware	E3	35	5	.3	4.9	.3	.6	3.8	8.8	3.7	12.7	.4	.2	4.6
Florida	E5	500	58	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.8	60.7
Georgia	E3	311	36	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.8	41.7
Hawaii	E3	24	2	.2	2.8	.1	.2	1.9	4.4	1.6	6.2	.1	(NA)	(NA)
Idaho	E4	62	3	.4	8.1	.4	.8	6.6	10.9	8.4	19.4	.7	.3	7.5
Illinois	E2	1 179	216	16.7	318.9	12.4	24.7	211.3	570.2	274.4	852.1	36.4	FF	(D)
Indiana	E3	459	80	5.8	98.7	4.5	8.8	68.3	180.3	85.3	264.3	15.2	4.5	102.7
Iowa	E2	141	17	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Kansas	E2	245	26	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Kentucky	E2	185	25	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.7	32.2
Louisiana	E4	333	57	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Maine	E3	65	8	.6	10.3	.4	.9	7.2	20.6	8.7	29.4	2.7	.4	9.7
Maryland	E2	182	36	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Massachusetts	E2	744	119	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	6.5	143.2
Michigan	E2	1 158	184	13.1	254.1	10.2	19.9	178.9	465.2	245.4	717.7	35.2	13.1	330.9
Minnesota	E2	446	89	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.7	131.4
Mississippi	E3	108	10	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Missouri	E2	345	41	3.8	65.0	3.0	6.0	47.3	113.1	45.6	159.9	10.2	FF	(D)
Montana	E3	41	1	.2	3.5	.2	.4	2.9	6.9	3.2	10.2	.4	(NA)	(NA)
Nebraska	E2	92	9	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	10.5
Nevada	E4	45	4	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	4.4
New Hampshire	E5	140	17	1.4	21.4	1.2	2.3	15.5	38.4	15.4	53.8	(D)	EE	(D)
New Jersey	E3	823	99	8.2	147.9	6.4	12.9	106.0	261.6	118.9	381.2	19.1	FF	(D)
New Mexico	E3	99	14	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	14.0
New York	E3	1 086	154	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
North Carolina	E3	429	53	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
North Dakota	E2	33	4	.3	4.8	.2	.4	3.7	9.1	4.9	13.8	1.0	(NA)	(NA)
Ohio	E3	1 478	206	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Oklahoma	E3	430	47	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Oregon	E4	273	27	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Pennsylvania	E2	1 036	212	15.4	263.4	12.4	24.0	189.7	488.5	253.8	744.3	37.5	10.6	249.3
Rhode Island	E5	113	15	.9	14.1	.7	1.4	10.0	25.2	9.7	35.0	(D)	CC	(D)
South Carolina	E5	208	17	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	17.0
Tennessee	E3	267	37	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.2	50.1
Texas	E4	1 945	294	22.8	417.1	18.2	36.5	301.9	783.2	378.0	1 154.3	71.6	13.5	324.3
Utah	E6	123	15	1.5	26.6	1.2	2.5	21.1	58.5	22.5	73.7	3.3	CC	(D)
Vermont	E1	30	7	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Virginia	E3	268	49	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Washington	E3	378	39	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
West Virginia	E3	133	23	2.0	34.8	1.5	2.9	23.7	69.0	35.2	103.2	3.6	EE	(D)
Wisconsin	E2	514	82	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	6.0	136.4
Wyoming	E4	42	3	.4	6.7	.3	.6	5.5	12.1	4.1	16.3	.6	.4	8.8

See footnotes at end of table.

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

Note: For qualifications of data, see footnotes on table 1a.

¹Payroll and sales data for some small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at time data were tabulated. The following symbols are shown for those States where estimated data based on administrative records data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

²Includes establishments with payroll at any time during year.

³Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 150 employees or more, number of establishments is shown and employment size range is indicated by one of the following symbols: AA—150 to 249 employees; BB—250 to 499 employees; CC—500 to 999 employees; EE—1,000 to 2,499 employees; FF—2,500 employees or more.

⁴Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, data for inventories and value added by manufacture are not comparable to prior-year data.

Table 3a. Summary Statistics for the Industry: 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Automatic merchandising machines (SIC 3581)	Commercial laundry equipment (SIC 3582)	Refrigeration and heating equipment (SIC 3585)	Measuring and dispensing pumps (SIC 3586)	Service industry machinery, n.e.c. (SIC 3589)	Carburetors, pistons, rings, and valves (SIC 3592)	Machinery, except electrical, n.e.c. (SIC 3599)
Companies ¹ number...	88	86	731	58	791	149	21 903
All establishments ² do...	92	87	865	61	832	171	22 075
With 1 to 19 employees do...	56	42	369	26	545	77	18 976
With 20 to 99 employees do...	19	34	262	19	206	49	2 890
With 100 employees or more do...	17	11	234	16	81	45	209
All employees:							
Average for year 1,000...	7.4	4.7	120.5	8.1	31.0	31.2	250.9
Annual payroll ³ mil. dol...	123.3	83.0	2 393.2	160.0	584.0	691.9	4 543.1
Production workers:							
Average for year 1,000...	5.1	3.2	85.0	5.2	17.8	24.0	196.8
March do...	5.4	3.4	90.7	5.5	18.4	24.7	204.9
May do...	5.5	3.3	88.4	5.3	17.9	25.4	199.7
August do...	4.6	3.2	82.1	5.1	17.4	24.3	193.8
November do...	4.9	3.2	79.0	5.0	17.6	21.8	188.6
Hours millions...							
January to March do...	9.8	6.4	159.3	9.9	33.5	46.0	390.3
April to June do...	2.6	1.6	42.3	2.5	8.6	11.5	99.1
July to September do...	2.6	1.7	43.4	2.6	8.4	12.7	98.0
October to December do...	2.3	1.5	36.4	2.4	8.1	11.5	95.1
..... do...	2.3	1.6	37.2	2.4	8.3	10.3	93.8
Wages mil. dol...	72.3	49.6	1 532.6	86.9	283.0	492.4	3 201.2
Value added by manufacture ⁴ do...	215.0	170.0	6 049.4	365.1	1 321.3	1 385.1	8 420.5
Cost of materials, etc. ⁵ do...	267.1	147.8	6 190.6	299.7	1 235.4	795.6	3 820.3
Materials, parts, containers, etc., consumed do...	250.1	132.4	5 555.6	267.4	1 092.7	718.7	3 055.8
Resales do...	8.6	9.2	443.3	18.8	83.8	16.7	99.5
Fuels consumed ⁶ do...	2.9	1.7	61.0	3.7	8.1	15.3	53.0
Purchased electric energy ⁷ do...	3.8	1.9	108.1	5.0	13.8	40.2	129.5
Contract work do...	1.6	2.6	22.5	4.9	36.9	4.8	481.0
Value of shipments, including resales do...	479.4	321.0	12 390.3	676.2	2 583.0	2 224.5	12 271.4
Value of resales do...	11.5	13.2	604.8	39.2	121.2	20.8	127.8
Manufacturers' inventories (see tables 3b and 3c)							
Capital expenditures for plant and equipment ⁸ do...	14.2	6.1	358.3	14.4	69.5	110.1	756.9
New capital expenditures do...	13.1	4.9	329.3	12.8	54.6	106.0	660.7
New buildings and other structures do...	2.0	1.6	56.2	1.6	10.6	14.5	82.2
New machinery and equipment do...	11.2	3.3	273.1	11.2	43.9	91.5	578.5
Used capital expenditures do...	1.1	1.2	29.0	1.7	15.0	4.2	96.2
Primary product specialization ratio ⁹ percent...	93	96	92	86	93	81	96
Coverage ratio ¹⁰ do...	98	87	96	93	88	94	94

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during year.

³Data on supplemental labor costs are not included in annual payroll, but are shown in table 3d.

⁴Value added by manufacture is computed using inventory data reported on a cost or market basis prior to any adjustment to LIFO cost. See table 3b, footnote 1 for further explanation.

⁵Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3d.

⁶Data on purchased fuels by type were not collected for 1982. See MC82-S-4, Fuels and Electric Energy Consumed, for 1981 data on purchased fuels by type.

⁷Data on quantity of electric energy used for heat and power are included in table 3d.

⁸Data on capital expenditures for new machinery and equipment by type, depreciable assets, retirements, rental payments, and depreciation are included in table 3d.

⁹Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in industry.

¹⁰Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 3b. Value of Inventories for the Industry: End of 1981 and 1982

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Automatic merchandising machines (SIC 3581)		Commercial laundry equipment (SIC 3582)		Refrigeration and heating equipment (SIC 3585)		Measuring and dispensing pumps (SIC 3586)	
	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982
Total Inventories¹	117.3	118.2	72.1	64.1	2 408.8	2 141.9	170.4	157.2
Detail by method of valuation:								
Subject to LIFO costing ²	50.4	54.0	38.2	31.0	1 223.7	1 084.2	99.2	88.8
LIFO reserve	14.8	16.2	14.1	12.3	463.8	422.2	21.0	20.6
LIFO value	35.6	37.8	24.1	18.7	759.9	662.0	78.2	68.3
Not subject to LIFO costing	59.3	57.2	22.8	22.4	1 054.0	932.1	64.6	62.2
Valuation method not reported ³	7.6	7.0	10.6	10.4	130.0	123.0	6.2	5.8
Amount subject to LIFO reported without associated reserve and value ⁴	-	(Z)	.4	.3	1.0	2.6	.3	.4
Detail by stage of fabrication:								
Finished goods	35.2	36.5	9.9	9.4	1 024.8	929.9	41.2	40.1
Work in process	35.0	36.4	34.0	31.3	586.3	530.9	87.5	77.2
Materials and supplies	47.1	45.4	28.1	23.4	797.7	681.2	41.7	39.8

Item	Service industry machinery, n.e.c. (SIC 3589)		Carburetors, pistons, rings, and valves (SIC 3592)		Machinery, except electrical, n.e.c. (SIC 3599)	
	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982
Total Inventories¹	549.7	516.6	389.1	353.5	1 701.8	1 641.4
Detail by method of valuation:						
Subject to LIFO costing ²	154.2	162.3	70.3	77.2	179.4	169.4
LIFO reserve	39.1	43.0	29.0	30.4	39.3	39.8
LIFO value	115.1	119.3	41.3	46.8	140.1	129.6
Not subject to LIFO costing	299.8	272.6	307.8	267.0	648.1	651.7
Valuation method not reported ³	87.7	79.7	10.7	8.9	862.7	807.2
Amount subject to LIFO reported without associated reserve and value ⁴	8.1	2.1	.3	.3	11.6	13.2
Detail by stage of fabrication:						
Finished goods	135.6	129.9	90.4	101.6	294.2	298.2
Work in process	185.2	164.7	214.8	159.9	950.0	917.0
Materials and supplies	228.8	222.1	83.9	92.0	457.4	426.2

¹Effective with the 1982 Economic Censuses, uniform instructions for reporting inventories were introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (LIFO, FIFO, market, to name a few). In 1982, all respondents were requested to report inventories at cost or market. LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve. For further explanation, see inventories in appendixes.

²Only includes data reported by respondents who (a) indicated amount of inventories subject to LIFO cost, and (b) provided sufficient information to determine associated LIFO reserve and value figures.

³Includes data estimated for nonresponse and nonmail administrative records and data reported by respondents who provided total inventory figures without other information.

⁴Includes data reported by respondents who indicated their inventories were subject to LIFO cost, but did not provide associated LIFO reserve and value figures.

Table 3c. Inventories by Specific Method of Valuation for the Industry: End of 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Automatic merchandising machines (SIC 3581)		Commercial laundry equipment (SIC 3582)		Refrigeration and heating equipment (SIC 3585)		Measuring and dispensing pumps (SIC 3586)	
	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)
Total Inventories	100.0	(X)	100.0	(X)	100.0	(X)	100.0	(X)
Last-in, First-Out (LIFO) methods	45.7	(X)	48.3	(X)	50.6	(X)	56.5	(X)
Non-LIFO methods	48.4	(X)	34.9	(X)	43.5	(X)	39.6	(X)
Cost basis:								
First-in, First-Out (FIFO)	19.5	3.8	18.4	5.0	20.1	.4	7.1	.6
Average cost	2.2	.5	(S)	(S)	3.3	.2	.8	(Z)
Specific or actual cost	7.6	1.5	4.5	1.3	4.2	.2	2.7	(Z)
Standard cost	19.1	5.5	(S)	(S)	15.1	.3	29.0	.5
Other	(Z)	(Z)	(Z)	(Z)	.4	.1	(Z)	(Z)
Market basis:								
Market lower than cost	(Z)	(Z)	(Z)	(Z)	.1	(Z)	(Z)	(Z)
Market always used	(Z)	(Z)	(Z)	(Z)	.2	.1	(Z)	(Z)
Valuation method not reported	5.9	(X)	16.3	(X)	5.7	(X)	3.7	(X)
Amount subject to LIFO reported without associated reserve and value	(Z)	(X)	.5	(X)	.1	(X)	.3	(X)

See footnotes at end of table.

Table 3c. Inventories by Specific Method of Valuation for the Industry: End of 1982—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Service industry machinery, n.e.c. (SIC 3589)		Carburetors, pistons, rings, and valves (SIC 3592)		Machinery, except electrical, n.e.c. (SIC 3599)	
	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)
Total inventories	100.0	(X)	100.0	(X)	100.0	(X)
Last-in, First-Out (LIFO) methods	31.4	(X)	21.8	(X)	10.3	(X)
Non-LIFO methods	52.8	(X)	75.5	(X)	39.7	(X)
Cost basis:						
First-in, First-Out (FIFO)	24.3	2.5	26.9	3.9	12.1	1.5
Average cost	3.6	.9	19.5	1.6	3.6	.7
Specific or actual cost	11.9	3.6	5.8	.5	18.0	2.3
Standard cost	10.0	1.1	23.3	2.0	3.1	.6
Other	(S)	(S)	(Z)	(Z)	1.7	.6
Market basis:						
Market lower than cost	1.8	1.1	(Z)	(Z)	1.1	.5
Market always used	(S)	(S)	(Z)	(Z)	(S)	(S)
Valuation method not reported	15.4	(X)	2.5	(X)	49.2	(X)
Amount subject to LIFO reported without associated reserve and value .....	.4	(X)	.1	(X)	.8	(X)

Note: The percentages shown for the LIFO and non-LIFO totals and the categories "valuation method not reported" and "amount subject to LIFO reported..." are based on the census universe estimates included in table 3b. The percentages shown for the specific non-LIFO methods of valuation (e.g., FIFO, etc.) are based on a representative sample of establishments included in the annual survey of manufactures (ASM) panel for 1982 (see appendixes for description of ASM). The absolute standard error of each of the ASM estimates is shown above.

Table 3d. Supplemental Industry Statistics Based on Sample Estimates: 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Automatic merchandising machines (SIC 3581)		Commercial laundry equipment (SIC 3582)		Refrigeration and heating equipment (SIC 3585)		Measuring and dispensing pumps (SIC 3586)	
	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)
Supplemental labor costs:								
Total	26.6	4	14.8	6	670.7	1	36.6	2
Legal costs	11.8	3	7.1	7	228.4	1	14.0	1
Voluntary costs	14.8	5	7.7	5	442.3	1	22.5	2
Purchased services:								
Cost of purchased services for the repair of—								
Buildings and other structures .....	.8	4	.2	56	10.6	4	1.0	6
Response coverage ratio (percent) ²	74.7	(X)	58.7	(X)	81.8	(X)	89.2	(X)
Machinery	2.3	3	.1	1	31.2	2	4.1	12
Response coverage ratio (percent) ²	84.3	(X)	45.1	(X)	81.0	(X)	89.0	(X)
Cost of purchased communication services	2.2	14	.6	36	29.0	2	2.9	5
Response coverage ratio (percent) ²	84.7	(X)	63.1	(X)	84.0	(X)	86.2	(X)
Electric energy used for heat and power:								
Purchased:								
Quantity (million kWh)	59.5	1	34.0	3	2 246.9	1	94.9	1
Cost	3.8	(X)	1.9	(X)	108.1	(X)	5.0	(X)
Generated less sold (million kWh)	-	-	-	-	-	-	-	-
Gross book value of depreciable assets:								
Total:								
Beginning of year	107.0	37	39.5	5	3 258.1	1	160.0	2
New capital expenditures	25.5	63	3.4	35	305.7	2	12.7	7
Used capital expenditures .....	.1	1	.1	78	28.1	6	1.6	1
Retirements	2.0	35	.6	23	140.9	3	4.1	1
End of year	130.7	35	42.3	4	3 451.1	1	170.1	2
Buildings and other structures:								
Beginning of year	34.2	31	14.4	11	952.5	2	54.3	6
New capital expenditures	1.5	5	.4	48	46.6	5	1.4	2
Used capital expenditures	-	1	.1	86	9.2	15	1.4	1
Retirements .....	.2	11	.1	38	21.8	10	.1	13
End of year	35.5	30	14.7	10	986.4	2	57.0	6
Machinery and equipment:								
Beginning of year	72.8	42	25.1	10	2 305.6	1	105.6	2
New capital expenditures	24.1	66	3.0	37	259.2	2	11.3	7
Automobiles, trucks, etc., for highway use .....	.1	10	.1	28	6.4	7	.5	33
Computers and peripheral data processing equipment .....	.1	1	.1	38	11.3	3	2.3	5
All other	21.8	73	1.4	20	222.7	2	8.0	8
New machinery and equipment, n.s.k. ³	2.1	(S)	1.4	(S)	18.8	(S)	.5	(S)
Used capital expenditures .....	.1	1	(Z)	1	18.9	3	.2	1
Retirements	1.8	39	.4	22	119.0	2	4.0	1
End of year	95.2	41	27.7	8	2 464.6	1	113.1	2
Rental payments:								
Total	3.8	16	1.9	49	57.9	3	3.3	3
Buildings and other structures	2.0	32	1.8	53	19.7	7	.9	9
Machinery and equipment	1.7	5	.2	42	38.2	2	2.4	3
Depreciation charges during 1982:								
Total	8.9	27	4.2	10	248.4	1	9.5	4
Buildings and other structures	1.6	21	.7	17	36.4	2	2.1	9
Machinery and equipment	7.3	31	3.5	12	212.0	1	7.4	4

See footnotes at end of table.

Table 3d. Supplemental Industry Statistics Based on Sample Estimates: 1982—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Service industry machinery, n.e.c. (SIC 3589)		Carburetors, pistons, rings, and valves (SIC 3592)		Machinery, except electrical, n.e.c. (SIC 3599)	
	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)
Supplemental labor costs:						
Total	113.9	2	224.5	1	692.1	3
Legal costs	49.0	2	64.5	1	373.5	2
Voluntary costs	64.9	3	160.0	2	318.7	4
Purchased services:						
Cost of purchased services for the repair of—						
Buildings and other structures	17.0	2	22.7	7	20.4	14
Response coverage ratio (percent) ²	68.9	(X)	71.1	(X)	49.9	(X)
Machinery	10.4	8	37.9	1	51.5	12
Response coverage ratio (percent) ²	67.3	(X)	71.2	(X)	61.5	(X)
Cost of purchased communication services	22.2	31	3.5	4	27.9	9
Response coverage ratio (percent) ²	74.2	(X)	57.5	(X)	53.5	(X)
Electric energy used for heat and power:						
Purchased:						
Quantity (million kWh)	219.6	2	784.1	1	2 295.3	2
Cost	13.8	(X)	40.2	(X)	129.5	(X)
Generated less sold (million kWh)	-	-	(S)	1	2.8	101
Gross book value of depreciable assets:						
Total:						
Beginning of year	497.1	3	1 103.7	3	5 189.1	4
New capital expenditures	42.0	8	100.2	14	490.1	9
Used capital expenditures	14.5	17	2.6	3	108.0	45
Retirements	28.4	9	55.2	3	196.6	17
End of year	525.3	3	1 151.3	3	5 590.6	4
Buildings and other structures:						
Beginning of year	172.1	5	209.2	3	949.9	8
New capital expenditures	8.1	14	11.0	4	52.7	15
Used capital expenditures	6.9	34	-	1	32.8	90
Retirements	4.4	20	5.2	4	28.7	21
End of year	182.8	4	215.1	3	1 006.6	9
Machinery and equipment:						
Beginning of year	325.0	4	894.4	3	4 239.2	4
New capital expenditures	33.9	8	89.2	15	437.4	10
Automobiles, trucks, etc., for highway use	2.5	17	1.5	3	14.2	18
Computers and peripheral data processing equipment	3.6	16	3.1	1	14.4	21
All other	21.5	7	67.3	6	263.6	13
New machinery and equipment, n.s.k. ³	6.4	(S)	17.4	(S)	145.5	(S)
Used capital expenditures	7.6	10	2.6	3	75.2	28
Retirements	24.0	7	50.1	3	168.1	16
End of year	342.5	4	936.2	3	4 584.0	4
Rental payments:						
Total	21.0	8	14.1	7	190.6	9
Buildings and other structures	14.2	9	3.1	30	109.2	10
Machinery and equipment	6.9	12	11.0	2	81.4	13
Depreciation charges during 1982:						
Total	43.4	5	88.0	2	533.5	5
Buildings and other structures	9.2	8	8.5	4	54.4	10
Machinery and equipment	34.2	5	79.4	2	479.1	5

Note: Data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used expenditures are also shown in table 3a. Data in table 3a are census universe totals and may differ from annual survey of manufactures (ASM) sample estimates shown in this table. Data in this table represent best estimates of year-to-year change as measured by the continuing ASM sample. However, they are subject to sampling error and, hence, as estimates of level, are not as reliable as universe figures shown in table 3a.

¹For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

²Measure of extent to which respondents reported each item. Derived for each item by calculating the ratio of weighted employment for those sample establishments that reported the specific inquiry to weighted total employment for all sample establishments classified in industry. (See appendixes for explanation of sample weight.)

³Represents total machinery and equipment expenditures for establishments that did not break down their expenditures by specific type.

Table 4. Industry Statistics by Employment Size of Establishment: 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E ¹	All estab- lish- ments (no.)	All employees		Production workers			Value added by manufac- ture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expend- itures (million dollars)	End-of- year invento- ries (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3581, AUTOMATIC MERCHANDISING MACHINES												
Total	-	92	7.4	123.3	5.1	9.8	72.3	215.0	267.1	479.4	13.1	118.2
Establishments with an average of—												
1 to 4 employees	E9	24	(Z)	.5	(Z)	.1	.3	1.1	1.4	2.4	.1	.6
5 to 9 employees	E7	13	.1	1.3	.1	.1	.8	1.6	3.1	4.7	.1	1.3
10 to 19 employees	E6	19	.2	3.4	.2	.3	1.9	5.5	8.3	13.9	.6	3.7
20 to 49 employees	E1	15	.4	6.8	.3	.5	3.4	13.5	14.1	28.1	2.6	7.7
50 to 99 employees	-	4	.2	3.2	.2	.3	2.0	6.7	8.2	15.0	.3	2.1
100 to 249 employees	-	9	1.7	31.1	1.0	2.0	15.1	43.4	62.3	103.7	4.3	35.6
250 to 499 employees	-	4	1.5	22.0	.9	1.7	12.9	31.6	37.8	73.5	1.9	19.7
500 to 999 employees	-	4	3.2	55.0	2.5	4.8	35.8	111.5	131.8	238.1	3.2	47.6
Covered by administrative records ²	E9	38	.2	2.8	.1	.3	1.8	4.9	6.3	11.4	.4	2.8

See footnotes at end of table.

Table 4. Industry Statistics by Employment Size of Establishment: 1982—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E ¹	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT												
Total.....	-	87	4.7	83.0	3.2	6.4	49.6	170.0	147.8	321.0	4.9	64.1
Establishments with an average of—												
1 to 4 employees.....	E9	19	(Z)	.5	(Z)	.1	.5	1.0	1.1	2.1	(Z)	.3
5 to 9 employees.....	E9	13	.1	1.3	.1	.1	.8	2.7	2.4	5.2	.1	1.0
10 to 19 employees.....	E6	10	.1	1.8	.1	.2	1.1	3.4	2.7	6.3	.1	1.1
20 to 49 employees.....	E2	18	.5	9.4	.4	.7	5.2	19.3	17.8	36.7	.9	9.1
50 to 99 employees.....	E1	16	1.1	19.9	.7	1.5	10.0	42.4	43.3	86.2	.9	12.7
100 to 249 employees.....	-	7	1.0	16.4	.7	1.5	10.5	37.2	33.6	70.5	2.6	14.9
250 to 499 employees.....	-	2	1.7	33.7	1.2	2.3	21.6	64.0	46.8	114.0	.5	25.0
500 to 999 employees.....	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records ²	E9	32	.2	2.1	.1	.3	1.5	4.6	4.0	8.6	.1	1.4
INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT												
Total.....	-	865	120.5	2 393.2	85.0	159.3	1 532.6	6 049.4	6 190.6	12 390.3	329.3	2 141.9
Establishments with an average of—												
1 to 4 employees.....	E9	144	.3	4.7	.2	.4	3.3	10.8	13.4	24.5	.7	5.2
5 to 9 employees.....	E8	90	.6	9.3	.4	.8	6.3	19.4	23.7	43.5	1.1	7.6
10 to 19 employees.....	E5	135	1.9	31.2	1.4	2.8	19.5	65.6	76.2	143.5	2.8	23.3
20 to 49 employees.....	E3	157	5.0	86.3	3.5	6.6	51.0	183.2	195.6	381.0	8.3	62.0
50 to 99 employees.....	E2	105	7.4	125.5	5.3	10.3	76.1	271.9	288.8	562.0	15.1	107.7
100 to 249 employees.....	E1	116	18.6	320.6	13.2	25.2	195.6	782.5	798.9	1 583.8	56.0	348.1
250 to 499 employees.....	-	62	21.1	388.3	14.6	29.8	239.4	1 095.6	1 018.9	2 148.1	47.0	419.3
500 to 999 employees.....	-	40	27.7	521.5	19.3	34.1	331.5	1 287.3	1 785.5	3 147.2	82.0	612.0
1,000 to 2,499 employees.....	-	12	20.3	418.9	15.1	26.9	285.8	1 165.3	1 225.3	2 435.6	57.2	375.3
2,500 employees or more.....	-	4	17.6	486.8	11.9	22.6	324.0	1 167.9	764.3	1 921.3	59.3	181.5
Covered by administrative records ²	E9	238	1.8	26.5	1.3	2.5	17.7	54.9	68.9	123.1	3.0	21.6
INDUSTRY 3586, MEASURING AND DISPENSING PUMPS												
Total.....	-	61	8.1	160.0	5.2	9.9	88.9	365.1	299.7	676.2	12.8	157.2
Establishments with an average of—												
1 to 4 employees.....	E8	11	(Z)	.4	(Z)	(Z)	.3	1.1	.7	1.7	(Z)	.4
5 to 9 employees.....	E7	4	(Z)	.4	(Z)	(Z)	.3	1.2	.8	2.0	(Z)	.4
10 to 19 employees.....	E3	11	.2	2.5	.1	.2	1.3	7.4	5.0	12.4	.4	2.3
20 to 49 employees.....	E3	9	.3	6.1	.2	.4	2.9	12.6	9.7	22.8	.6	5.4
50 to 99 employees.....	-	10	.8	11.2	.4	.8	6.0	25.7	20.5	46.5	.8	10.3
100 to 249 employees.....	-	7	1.2	20.1	.9	1.8	13.5	75.3	93.5	168.5	2.0	20.6
250 to 499 employees.....	-	5	1.7	33.0	1.1	1.9	19.4	75.5	62.0	142.0	3.2	48.7
500 to 999 employees.....	-	2	4.1	86.3	2.5	4.7	43.2	166.2	107.5	280.4	5.8	69.0
1,000 to 2,499 employees.....	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records ²	E9	14	.1	1.0	.1	.1	.8	2.7	2.0	4.8	.1	1.1
INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.												
Total.....	E1	832	31.0	584.0	17.8	33.5	283.0	1 321.3	1 235.4	2 583.0	54.6	516.6
Establishments with an average of—												
1 to 4 employees.....	E8	223	.5	7.5	.3	.6	4.0	16.6	17.4	34.8	.6	8.5
5 to 9 employees.....	E6	177	1.2	17.6	.7	1.4	9.3	36.9	36.4	76.2	1.2	13.7
10 to 19 employees.....	E3	145	2.0	32.2	1.2	2.2	16.0	66.0	66.9	138.3	7.0	22.6
20 to 49 employees.....	E2	129	4.0	68.1	2.5	4.7	36.3	187.8	153.0	322.8	7.1	54.7
50 to 99 employees.....	-	77	5.4	95.2	3.1	5.9	44.8	231.6	229.4	481.1	9.5	90.8
100 to 249 employees.....	-	83	9.6	166.4	5.8	10.4	90.7	442.0	378.5	828.8	14.5	179.3
250 to 499 employees.....	-	14	5.1	111.2	3.1	6.0	57.6	237.2	238.2	489.1	12.0	96.7
500 to 999 employees.....	-	3	3.0	65.8	1.3	2.2	24.1	123.1	111.6	233.9	2.7	52.4
1,000 to 2,499 employees.....	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records ²	E9	285	1.1	14.4	.7	1.3	7.2	29.9	29.7	60.2	1.0	11.9
INDUSTRY 3592, CARBURETORS, PISTONS, RINGS, AND VALVES												
Total.....	-	171	31.2	691.9	24.0	48.0	492.4	1 385.1	795.6	2 224.5	106.0	353.5
Establishments with an average of—												
1 to 4 employees.....	E9	35	.1	.9	.1	.1	.8	2.8	1.6	4.4	.2	.7
5 to 9 employees.....	E8	23	.2	2.1	.1	.2	1.8	3.8	2.5	8.3	.7	1.2
10 to 19 employees.....	E7	19	.3	4.4	.2	.4	3.2	7.7	4.5	12.3	.6	1.8
20 to 49 employees.....	E3	33	1.0	17.4	.8	1.5	10.8	28.4	33.8	63.1	19.3	12.6
50 to 99 employees.....	E1	16	1.1	21.3	.9	1.8	14.0	44.9	31.1	76.0	7.1	15.7
100 to 249 employees.....	-	16	2.9	52.5	2.4	4.5	41.2	118.9	57.1	173.5	6.3	33.9
250 to 499 employees.....	-	12	4.2	84.1	3.1	6.0	56.5	128.4	107.1	238.1	16.8	67.8
500 to 999 employees.....	-	9	8.5	128.4	5.0	9.4	87.3	229.5	114.2	355.8	10.2	58.2
1,000 to 2,499 employees.....	-	8	15.0	380.8	11.6	22.1	277.2	820.7	443.7	1 294.8	44.8	181.5
2,500 employees or more.....	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records ²	E9	66	.8	7.7	.5	.9	5.9	15.1	8.8	24.2	1.5	4.0
INDUSTRY 3599, MACHINERY, EXCEPT ELECTRICAL, N.E.C.												
Total.....	E3	22 075	250.9	4 543.1	196.8	390.3	3 201.2	8 420.5	3 820.3	12 271.4	660.7	1 641.4
Establishments with an average of—												
1 to 4 employees.....	E9	9 788	19.3	271.5	15.8	32.9	226.3	610.8	274.7	894.8	49.4	122.6
5 to 9 employees.....	E5	5 112	34.3	511.1	27.9	55.7	383.0	971.1	408.7	1 388.4	86.3	150.1
10 to 19 employees.....	E2	4 076	55.5	955.2	44.1	85.1	692.2	1 719.1	735.3	2 456.5	130.6	228.3
20 to 49 employees.....	E2	2 384	70.0	1 333.8	55.7	109.3	940.9	2 368.8	1 051.1	3 430.8	185.0	360.8
50 to 99 employees.....	E2	506	34.0	674.8	26.4	53.0	458.7	1 245.3	603.2	1 849.8	98.3	261.1
100 to 249 employees.....	E1	183	25.4	508.9	18.9	37.7	336.0	948.9	497.6	1 464.4	78.0	305.4
250 to 499 employees.....	-	20	6.2	129.5	4.2	8.3	76.0	263.4	136.5	380.9	16.6	117.2
500 to 999 employees.....	E3	3	1.7	34.8	1.1	2.3	22.5	63.9	31.0	94.2	3.1	18.1
1,000 to 2,499 employees.....	-	3	4.6	123.4	2.8	6.1	65.7	229.4	82.2	311.6	33.5	77.6
Covered by administrative records ²	E9	11 189	35.6	432.6	29.3	59.8	333.5	903.8	419.0	1 337.1	63.5	194.4

See footnotes at end of table.

Table 4. Industry Statistics by Employment Size of Establishment: 1982—Con.

Note: For qualifications of data, see footnotes on table 1a. Data shown as a (D) are included in underscored figures above.

¹Payroll and sales data for some small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at time data were tabulated. The following symbols are shown for those States where estimated data based on administrative records data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

²Report forms were not mailed to small single-unit companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1982 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective size classes shown.

Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1982

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. Statistics for establishments with specialization ratios of less than 75 percent are included in total lines but are not shown as a separate class. In addition, data may not be shown for various reasons; e.g., to avoid disclosing data for individual companies. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Industry or product class code	Industry or product class by percent of specialization	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3581	Automatic merchandising machines:										
	Entire industry	92	7.4	123.3	5.1	9.8	72.3	215.0	267.1	479.4	13.1
	Establishments with 75 percent specialization or more ..	89	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
35811	Automatic merchandising machines:										
	Establishments with this product class primary	30	5.7	97.0	4.1	7.9	59.6	173.8	226.9	398.7	7.3
	Establishments with 75 percent specialization or more in class	24	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
35812	Parts for automatic merchandising machines:										
	Establishments with this product class primary	14	1.4	22.0	.8	1.6	10.0	34.3	30.3	63.8	5.0
	Establishments with 75 percent specialization or more in class	13	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3582	Commercial laundry equipment:										
	Entire industry	87	4.7	83.0	3.2	6.4	49.6	170.0	147.8	321.0	4.9
	Establishments with 75 percent specialization or more ..	81	4.1	73.0	2.9	5.8	44.5	150.7	132.5	286.4	4.4
3585	Refrigeration and heating equipment:										
	Entire industry	865	120.5	2 393.2	85.0	159.3	1 532.6	6 049.4	6 190.6	12 390.3	329.3
	Establishments with 75 percent specialization or more ..	805	104.9	2 032.8	73.8	137.8	1 281.1	5 000.7	5 461.6	10 601.1	294.3
35851	Heat transfer equipment:										
	Establishments with this product class primary	136	39.8	888.9	26.4	50.8	544.7	2 257.9	1 983.2	4 273.2	97.9
	Establishments with 75 percent specialization or more in class	93	14.9	287.9	10.1	19.7	171.9	620.6	667.3	1 312.1	36.5
35852	Unitary air conditioners:										
	Establishments with this product class primary	61	21.3	384.5	15.4	27.0	254.9	1 215.5	1 308.3	2 592.1	88.8
	Establishments with 75 percent specialization or more in class	32	11.2	201.1	7.9	13.6	130.5	663.5	647.1	1 348.9	55.3
35853	Commercial refrigerators:										
	Establishments with this product class primary	158	16.4	294.1	11.1	22.4	170.8	635.8	637.8	1 272.5	22.4
	Establishments with 75 percent specialization or more in class	134	12.8	226.0	8.8	16.7	133.5	500.9	514.0	1 014.2	16.7
35854	Compressors and compressor units:										
	Establishments with this product class primary	39	17.4	377.6	13.4	24.4	273.3	673.6	994.5	1 676.1	69.7
	Establishments with 75 percent specialization or more in class	33	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
35855	Refrigeration condensing units:										
	Establishments with this product class primary	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Establishments with 75 percent specialization or more in class	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
35856	Room air conditioners and dehumidifiers:										
	Establishments with this product class primary	18	7.2	129.2	5.6	9.9	90.9	271.2	506.6	803.4	11.1
	Establishments with 75 percent specialization or more in class	11	4.7	92.8	3.5	6.4	63.4	191.5	354.1	562.6	9.1
35859	Refrigeration and air conditioning equipment, n.e.c.:										
	Establishments with this product class primary	42	4.6	75.7	3.1	6.3	44.1	173.5	142.7	322.9	7.8
	Establishments with 75 percent specialization or more in class	33	3.0	45.2	2.2	4.3	26.9	116.4	103.1	222.1	5.4
3585A	Warm air furnaces and humidifiers:										
	Establishments with this product class primary	30	2.2	38.5	1.5	2.7	21.3	99.8	102.4	201.1	2.4
	Establishments with 75 percent specialization or more in class	24	1.8	31.4	1.2	2.2	17.3	80.8	77.7	156.4	2.1
3585B	Parts for refrigeration and heating equipment:										
	Establishments with this product class primary	54	7.1	135.9	5.3	9.7	87.8	313.6	322.6	645.3	19.9
	Establishments with 75 percent specialization or more in class	39	2.5	37.7	1.9	3.6	24.0	82.0	87.7	170.5	5.6
3586	Measuring and dispensing pumps:										
	Entire industry	61	8.1	160.0	5.2	9.9	86.9	365.1	299.7	676.2	12.8
	Establishments with 75 percent specialization or more ..	54	6.3	124.0	4.1	7.7	68.3	287.2	250.3	548.1	9.9
3589	Service Industry machinery, n.e.c.:										
	Entire industry	832	31.0	584.0	17.8	33.5	283.0	1 321.3	1 235.4	2 583.0	54.6
	Establishments with 75 percent specialization or more ..	768	26.7	498.9	15.3	28.6	241.1	1 127.0	1 047.6	2 198.3	44.8
35891	Commercial cooking and food warming equipment:										
	Establishments with this product class primary	97	8.6	159.3	5.6	10.5	90.8	353.9	286.8	653.0	10.9
	Establishments with 75 percent specialization or more in class	83	7.0	129.2	4.6	8.7	76.1	288.9	241.1	539.2	9.3
35892	Service industry machines and parts:										
	Establishments with this product class primary	270	16.9	339.5	8.8	16.4	148.3	784.5	773.1	1 564.5	33.6
	Establishments with 75 percent specialization or more in class	235	13.7	272.2	6.9	12.8	116.2	634.5	610.8	1 254.2	24.5
35893	Commercial and industrial vacuum cleaners:										
	Establishments with this product class primary	30	2.1	36.3	1.3	2.6	18.5	86.4	79.3	168.4	6.5
	Establishments with 75 percent specialization or more in class	24	1.9	30.3	1.2	2.3	16.0	74.7	65.8	142.4	6.1

See footnotes at end of table.

Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1982—
Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. Statistics for establishments with specialization ratios of less than 75 percent are included in total lines but are not shown as a separate class. In addition, data may not be shown for various reasons; e.g., to avoid disclosing data for individual companies. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Industry or product class code	Industry or product class by percent of specialization	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3592	Carburetors, pistons, rings, and valves:										
	Entire industry	171	31.2	691.9	24.0	46.0	492.4	1 385.1	795.6	2 224.5	106.0
	Establishments with 75 percent specialization or more ..	149	22.8	497.7	17.5	33.2	351.7	1 025.8	537.3	1 598.0	57.5
35921	Carburetors, new and rebuilt:										
	Establishments with this product class primary	29	16.2	363.5	12.6	23.4	256.0	829.3	494.8	1 367.0	43.9
	Establishments with 75 percent specialization or more in class	21	12.0	255.0	9.3	17.0	174.9	611.5	315.9	968.7	(D)
35922	Pistons, piston rings, and piston pins (engine):										
	Establishments with this product class primary	39	10.3	224.9	8.0	15.9	163.6	360.7	193.4	557.2	34.0
	Establishments with 75 percent specialization or more in class	27	6.0	136.6	4.7	9.3	101.9	216.9	111.5	324.0	15.5
35923	Valves (engine intake and exhaust):										
	Establishments with this product class primary	12	3.4	85.5	2.5	4.8	59.2	160.0	85.8	243.0	9.9
	Establishments with 75 percent specialization or more in class	11	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3599	Machinery, except electrical, n.e.c.:										
	Entire industry	22 075	250.9	4 543.1	196.8	390.3	3 201.2	8 420.5	3 820.3	12 271.4	660.7
	Establishments with 75 percent specialization or more ..	21 168	230.6	4 150.6	181.5	360.7	2 936.3	7 690.6	3 471.2	11 189.6	604.4
35994	Miscellaneous machinery products:										
	Establishments with this product class primary	1 416	29.6	550.0	22.5	43.3	374.7	1 026.5	589.0	1 609.2	82.8
	Establishments with 75 percent specialization or more in class	1 184	22.8	414.4	17.5	33.7	287.1	760.6	453.7	1 203.1	60.2
35995	Receipts for machine shop job work:										
	Establishments with this product class primary	5 118	113.5	2 276.2	89.0	177.6	1 615.1	4 070.1	1 709.7	5 792.5	322.5
	Establishments with 75 percent specialization or more in class	4 820	103.7	2 073.1	81.5	162.0	1 475.0	3 711.8	1 530.8	5 250.4	297.8
35996	Hydraulic and pneumatic cylinders, except aerospace:										
	Establishments with this product class primary	184	9.7	183.4	6.4	11.6	105.3	358.6	235.0	596.9	22.4
	Establishments with 75 percent specialization or more in class	127	5.7	110.4	3.9	7.2	65.6	217.9	143.3	366.2	14.5
35997	Hydraulic and pneumatic rotary actuators, accumulators, etc.:										
	Establishments with this product class primary	23	1.3	26.6	.9	1.9	18.0	68.3	27.4	87.5	3.6
	Establishments with 75 percent specialization or more in class	15	.7	14.1	.4	.8	7.7	34.0	17.2	51.1	1.6
35998	Aerospace type hydraulic and pneumatic cylinders and related items:										
	Establishments with this product class primary	52	5.8	148.4	3.6	7.8	81.2	273.6	101.1	374.8	(D)
	Establishments with 75 percent specialization or more in class	35	.7	14.8	.5	1.1	9.4	28.1	12.3	39.7	2.0
35999	Parts for hydraulic and pneumatic cylinders, etc.:										
	Establishments with this product class primary	23	1.2	25.2	.9	1.8	14.6	51.4	17.3	69.0	3.5
	Establishments with 75 percent specialization or more in class	17	.8	16.5	.5	1.1	9.2	31.4	12.0	43.8	2.8

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry-Product Analysis—Value of Shipments and Primary Product Shipments, Specialization and Coverage Ratios for the Industry: 1982 and Earlier Census Years

[An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work. Columns A-D show this product pattern for an industry, and column E shows primary product specialization ratio. The extent to which an industry's primary products are shipped by establishments classified in and out of an industry is shown in columns F-H and coverage ratio is shown in column I. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Industry and product group code	Industry and census year	Value of shipments					Value of primary product shipments			
		Total (million dollars)	Primary products (million dollars)	Secondary products (million dollars)	Miscellaneous receipts (million dollars)	Primary product specialization ratio Col. B ÷ Col. B + C (percent)	Total made in all industries (million dollars)	Made in this industry (million dollars)	Made in other industries (million dollars)	Coverage ratio Col. B ÷ Col. F (percent)
		A	B	C	D	E	F	G	H	I
3581	Automatic merchandising machines.....	1982... 479.4	436.4	30.8	12.3	93	445.7	436.4	9.4	98
		1977... 410.1	367.7	23.7	18.7	94	396.2	367.7	28.5	93
		1972... 324.4	293.2	17.8	13.4	94	306.3	293.2	13.1	96
3582	Commercial laundry equipment.....	1982... 321.0	293.6	11.7	15.6	96	338.7	293.6	45.1	87
		1977... 220.3	188.4	20.1	11.8	90	233.6	188.4	45.2	81
		1972... 157.0	130.6	13.4	13.0	91	185.3	130.6	54.7	70
3585	Refrigeration and heating equipment.....	1982... 12 390.3	10 587.3	914.3	888.7	92	11 035.6	10 587.3	448.3	96
		1977... 9 638.1	8 035.6	959.4	643.1	89	8 501.7	8 035.6	466.1	95
		1972... 7 083.5	5 635.3	1 053.3	394.9	84	6 232.1	5 635.3	596.8	90

See footnotes at end of table.

Table 5b. Industry-Product Analysis—Value of Shipments and Primary Product Shipments, Specialization and Coverage Ratios for the Industry: 1982 and Earlier Census Years—Con.

[An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work. Columns A-D show this product pattern for an industry, and column E shows primary product specialization ratio. The extent to which an industry's primary products are shipped by establishments classified in and out of an industry is shown in columns F-H and coverage ratio is shown in column I. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and product group code	Industry and census year	Value of shipments					Value of primary product shipments			
		Total (million dollars)	Primary products (million dollars)	Secondary products (million dollars)	Miscellaneous receipts (million dollars)	Primary product specialization ratio Col. B ÷ Col. B + C (percent)	Total made in all industries (million dollars)	Made in this industry (million dollars)	Made in other industries (million dollars)	Coverage ratio Col. B ÷ Col. F (percent)
		A	B	C	D	E	F	G	H	I
3586	Measuring and dispensing pumps ----- 1982--	676.2	547.3	87.6	41.3	86	590.7	547.3	43.4	93
	1977--	375.7	217.0	137.0	21.7	61	265.6	217.0	48.6	82
	1972--	232.3	151.8	62.0	18.5	71	183.4	151.8	31.6	83
3589	Service industry machinery, n.e.c. ----- 1982--	2 583.0	2 253.6	173.5	155.8	93	2 550.4	2 253.6	296.8	88
	1977--	1 771.8	1 515.7	153.6	102.5	91	1 687.6	1 515.7	171.9	90
	1972--	913.8	748.1	86.5	79.2	90	864.4	748.1	116.3	87
3592	Carburetors, pistons, rings, and valves ----- 1982--	2 224.5	1 790.9	407.0	26.6	81	1 908.1	1 790.9	117.2	94
	1977--	1 400.6	1 128.7	243.4	28.5	82	1 298.5	1 128.7	169.8	87
	1972--	744.3	589.4	141.8	13.1	81	791.9	589.4	202.5	74
3599	Machinery, except electrical, n.e.c. ----- 1982--	12 271.4	11 003.7	483.1	784.6	96	11 697.8	11 003.7	694.1	94
	1977--	6 607.0	6 034.7	235.1	337.2	96	6 441.0	6 034.7	406.3	94
	1972--	3 665.2	3 153.8	239.4	272.0	93	3 363.3	3 153.8	209.5	94

Table 5c-1. Industry-Product Analysis—Shipments by Product Class and Industry: 1982

[Million dollars. Table shows where products of an industry (referred to as primary and listed in table 6a) are made and what products are made by establishments classified in an industry. Read down an industry column to find what products are produced in an industry. Only those product groups that have at least \$2 million in shipments from establishments classified in one of industries included in this chapter are shown. Read across to determine where products of industries in this chapter are produced. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column. Specified "Other industries" are listed in table 5c-2 if they account for more than \$5 million of products primary to this chapter. For meaning of abbreviations and symbols, see explanatory text. For explanation of terms, see appendixes]

1982 product code	Product group, product class, and miscellaneous receipts	All industries	Automatic merchandising machines (SIC 3581)	Commercial laundry equipment (SIC 3582)	Refrigeration and heating equipment (SIC 3585)	Measuring and dispensing pumps (SIC 3586)	Service industry machinery, n.e.c. (SIC 3589)	Carburetors, pistons, rings, and valves (SIC 3592)	Machinery, except electrical, n.e.c. (SIC 3599)	Other industries
	Total -----	(X)	479.4	321.0	12 390.3	676.2	2 583.0	2 224.5	12 271.4	(X)
	Primary products -----	(X)	436.4	293.8	10 587.3	547.3	2 253.8	1 790.9	11 003.7	(X)
	Secondary products -----	(X)	30.8	11.7	914.3	87.6	173.5	407.0	483.1	(X)
	Miscellaneous receipts -----	(X)	12.3	15.8	888.7	41.3	155.8	28.8	784.6	(X)
3581-	Automatic merchandising machines -----	445.7	436.4	-	(D)	-	(D)	-	-	(D)
35811	Automatic merchandising machines -----	334.1	(D)	-	(D)	-	-	-	-	2.1
35812	Parts for automatic merchandising machines -----	96.2	(D)	-	-	-	(D)	-	-	(D)
35810	Automatic merchandise machines, n.s.k. ---	15.5	15.5	-	-	-	-	-	-	-
35820	Commercial laundry equipment -----	338.7	-	293.6	(D)	-	(D)	-	(D)	41.9
3585-	Refrigeration and heating equipment -----	11 035.6	(D)	-	10 587.3	-	12.9	-	.6	(D)
35851	Heat transfer equipment -----	2 908.0	-	-	2 830.8	-	(D)	-	-	(D)
35852	Unitary air conditioners -----	1 972.1	-	-	(D)	-	-	-	-	(D)
35853	Commercial refrigerators -----	1 070.8	-	-	1 042.4	-	(D)	-	(D)	(D)
35854	Compressors and compressor units -----	1 734.7	-	-	(D)	-	-	-	(D)	(D)
35855	Refrigeration condensing units -----	196.9	-	-	196.9	-	-	-	-	-
35856	Room air conditioners and dehumidifiers ---	897.5	-	-	(D)	-	-	-	-	(D)
35859	Refrigeration and air conditioning equipment, n.e.c. -----	428.9	(D)	-	402.8	-	(D)	-	-	(D)
3585A	Warm air furnaces and humidifiers -----	426.3	-	-	401.2	-	(D)	-	-	(D)
3585B	Parts for refrigeration and heating equipment -----	871.9	-	-	824.1	-	-	-	-	47.8
35850	Refrigeration and heating equipment, n.s.k. ---	528.5	-	-	525.8	-	-	-	(D)	(D)
35860	Measuring and dispensing pumps -----	590.7	-	-	-	547.3	-	-	(D)	(D)
3589-	Service industry machinery, n.e.c. -----	2 550.4	(D)	(D)	4.6	-	2 253.8	-	5.0	(D)
35891	Commercial cooking and food warming equipment -----	609.0	-	-	(D)	-	559.9	-	-	(D)
35892	Service industry machines and parts -----	1 568.4	(D)	-	(D)	-	1 346.5	-	4.0	215.2
35893	Commercial and industrial vacuum cleaners -----	192.9	(D)	-	-	-	169.8	-	-	(D)
35890	Service industry machinery, n.e.c., n.s.k. ---	180.1	-	(D)	(D)	-	177.4	-	1.0	(D)
3592-	Carburetors, pistons, rings, and valves -----	1 908.1	-	-	-	-	(D)	1 790.9	(D)	116.5
35921	Carburetors, new and rebuilt -----	1 028.7	-	-	-	-	-	1 004.2	-	24.6
35922	Pistons, piston rings, and piston pins (engine) -----	494.2	-	-	-	-	(D)	(D)	(D)	(D)
35923	Valves (engine intake and exhaust) -----	325.1	-	-	-	-	-	(D)	(D)	(D)
35920	Carburetors, pistons, rings, and valves, n.s.k. -----	60.1	-	-	-	-	-	60.1	-	-

See footnotes at end of table.

Table 5c-1. Industry-Product Analysis—Shipments by Product Class and Industry: 1982—Con.

[Million dollars. Table shows where products of an industry (referred to as primary and listed in table 6e) are made and what products are made by establishments classified in an industry. Read down an industry column to find what products are produced in an industry. Only those product groups that have at least \$2 million in shipments from establishments classified in one of industries included in this chapter are shown. Read across to determine where products of industries in this chapter are produced. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column. Specified "Other industries" are listed in table 5c-2 if they account for more than \$5 million of products primary to this chapter. For meaning of abbreviations and symbols, see explanatory text. For explanation of terms, see appendixes]

1982 product code	Product group, product class, and miscellaneous receipts	All industries	Automatic merchandising machines (SIC 3581)	Commercial laundry equipment (SIC 3582)	Refrigeration and heating equipment (SIC 3585)	Measuring and dispensing pumps (SIC 3586)	Service industry machinery, n.e.c. (SIC 3589)	Carburetors, pistons, rings, end valves (SIC 3592)	Machinery, except electrical, n.e.c. (SIC 3599)	Other industries
3599-	Machinery, except electrical, n.e.c.	11 697.8	(D)	(D)	(D)	(D)	(D)	(D)	11 003.7	679.0
35994	Miscellaneous machinery products	1 582.4	(D)	(D)	.9	(D)	(D)	(D)	1 382.1	191.9
35995	Receipts for machine shop job work	5 594.5	(D)	-	(D)	-	1.2	-	5 278.5	(D)
35996	Hydraulic and pneumatic cylinders, except aerospace	552.9	-	-	-	(D)	-	-	(D)	(D)
35997	Hydraulic and pneumatic rotary actuators, accumulators, etc.	87.9	-	-	-	-	-	-	(D)	(D)
35998	Aerospace type hydraulic and pneumatic cylinders and related items	310.1	-	-	-	-	-	-	(D)	(D)
35999	Parts for hydraulic and pneumatic cylinders, etc.	144.9	-	-	-	-	-	-	134.9	10.0
35990	Machinery, except electrical, n.e.c., n.s.k. ..	3 425.1	-	-	(D)	-	(D)	(D)	3 407.1	17.4
OTHER SHIPMENTS BY FOUR-DIGIT PRODUCT GROUP										
2394-	Canvas and related products	(X)	-	-	(D)	-	-	(D)	(D)	(X)
2541-	Wood partitions and fixtures	(X)	-	-	(D)	-	-	-	(D)	(X)
2542-	Metal partitions and fixtures	(X)	-	-	4.2	-	-	-	(D)	(X)
2599-	Furniture and fixtures, n.e.c.	(X)	(D)	-	(D)	-	20.1	-	(D)	(X)
2869-	Industrial organic chemicals, n.e.c.	(X)	-	-	-	-	(D)	-	-	(X)
3069-	Fabricated rubber products, n.e.c.	(X)	-	-	-	-	-	-	(D)	(X)
3079-	Miscellaneous plastics products	(X)	(D)	-	(D)	-	(D)	-	4.7	(X)
3292-	Asbestos products	(X)	-	-	-	-	-	-	(D)	(X)
3293-	Gaskets, packing, and sealing devices	(X)	-	-	-	-	-	(D)	(D)	(X)
3312-	Blast furnaces and steel mills	(X)	-	-	-	-	-	-	7.4	(X)
3321-	Grey iron castings	(X)	-	(D)	-	-	-	21.6	(D)	(X)
3351-	Copper rolling and drawing	(X)	-	-	(D)	-	-	-	-	(X)
3354-	Aluminum extruded products	(X)	-	-	(D)	-	-	-	(D)	(X)
3361-	Aluminum castings	(X)	-	-	(D)	-	-	3.2	(D)	(X)
3423-	Hand and edge tools, n.e.c.	(X)	-	-	-	-	(D)	-	2.0	(X)
3429-	Hardware, n.e.c.	(X)	-	-	(D)	-	(D)	-	2.6	(X)
3432-	Plumbing fittings and brass goods	(X)	-	(D)	(D)	-	-	-	(D)	(X)
3433-	Heating equipment, except electric	(X)	-	-	115.8	-	(D)	-	2.3	(X)
3443-	Fabricated plate work (boiler shops)	(X)	-	(D)	44.0	-	(D)	-	4.0	(X)
3444-	Sheet metal work	(X)	-	(D)	23.6	-	(D)	-	9.2	(X)
3451-	Screw machine products	(X)	-	-	(D)	(D)	-	(D)	1.6	(X)
3469-	Metal stampings, n.e.c.	(X)	(D)	-	3.5	-	(D)	-	11.8	(X)
3494-	Valves and pipe fittings	(X)	-	-	4.4	(D)	(D)	(D)	88.0	(X)
3496-	Miscellaneous fabricated wire products	(X)	(D)	-	-	-	-	-	(D)	(X)
3497-	Metal foil and leaf	(X)	(D)	-	-	-	-	-	-	(X)
3499-	Fabricated metal products, n.e.c.	(X)	-	-	(D)	(D)	-	(D)	12.5	(X)
3511-	Turbines and turbine generator sets	(X)	-	-	(D)	-	-	-	(D)	(X)
3523-	Farm machinery and equipment	(X)	-	-	-	(D)	(D)	-	3.9	(X)
3531-	Construction machinery	(X)	-	-	-	(D)	-	-	5.0	(X)
3532-	Mining machinery	(X)	-	-	-	-	-	-	4.1	(X)
3533-	Oil field machinery	(X)	-	-	(D)	-	-	-	22.8	(X)
3534-	Elevators and moving stairways	(X)	-	-	(D)	(D)	-	-	-	(X)
3535-	Conveyors and conveying equipment	(X)	-	-	(D)	-	(D)	(D)	4.5	(X)
3536-	Hoists, cranes, and monorails	(X)	-	-	(D)	(D)	-	-	7.4	(X)
3537-	Industrial trucks and tractors	(X)	-	-	-	(D)	(D)	-	1.3	(X)
3541-	Machine tools, metal cutting types	(X)	-	-	-	(D)	(D)	-	4.0	(X)
3542-	Machine tools, metal forming types	(X)	-	-	-	-	(D)	-	2.2	(X)
3544-	Special dies, tools, jigs, and fixtures	(X)	-	-	-	-	(D)	-	31.3	(X)
3545-	Machine tool accessories	(X)	-	(D)	-	-	-	(D)	12.9	(X)
3546-	Power driven hand tools	(X)	-	-	-	(D)	(D)	-	(D)	(X)
3549-	Metalworking machinery, n.e.c.	(X)	-	-	-	(D)	(D)	-	6.3	(X)
3551-	Food products machinery	(X)	-	(D)	(D)	-	2.0	-	4.8	(X)
3552-	Textile machinery	(X)	-	-	-	-	(D)	-	2.6	(X)
3559-	Special industry machinery, n.e.c.	(X)	-	-	(D)	(D)	10.4	-	30.6	(X)
3561-	Pumps and pumping equipment	(X)	-	-	9.4	20.3	23.0	-	17.4	(X)
3562-	Ball and roller bearings	(X)	-	-	-	-	-	-	(D)	(X)
3563-	Air and gas compressors	(X)	-	-	(D)	(D)	-	(D)	(D)	(X)
3564-	Blowers and fans	(X)	-	(D)	16.0	-	(D)	-	(D)	(X)
3565-	Industrial patterns	(X)	-	-	-	-	-	(D)	5.4	(X)
3567-	Industrial furnaces and ovens	(X)	-	-	(D)	-	(D)	-	(D)	(X)
3568-	Power transmission equipment, n.e.c.	(X)	-	-	(D)	(D)	-	(D)	1.4	(X)
3569-	General industrial machinery, n.e.c.	(X)	-	-	19.3	(D)	2.9	-	15.2	(X)
3573-	Electronic computing equipment	(X)	(D)	-	-	-	(D)	-	7.4	(X)
3621-	Motors and generators	(X)	-	-	(D)	-	-	(D)	(D)	(X)
3622-	Industrial controls	(X)	-	-	-	-	9.5	-	(D)	(X)
3624-	Carbon and graphite products	(X)	-	-	-	-	-	(D)	-	(X)
3631-	Household cooking equipment	(X)	-	-	(D)	-	-	-	-	(X)
3632-	Household refrigerators and freezers	(X)	-	-	(D)	-	-	-	-	(X)
3634-	Electric housewares and fans	(X)	-	-	25.9	-	(D)	-	(D)	(X)
3644-	Noncurrent-carrying wiring devices	(X)	-	-	-	-	-	-	(D)	(X)
3648-	Lighting equipment, n.e.c.	(X)	-	-	(D)	-	-	-	-	(X)
3661-	Telephone and telegraph apparatus	(X)	-	-	-	-	-	-	(D)	(X)
3662-	Radio and TV communication equipment	(X)	-	-	-	-	-	-	4.0	(X)
3693-	X-ray and electromedical apparatus	(X)	-	-	(D)	-	-	-	-	(X)
3694-	Engine electrical equipment	(X)	-	-	-	-	-	(D)	(D)	(X)
3699-	Electrical equipment and supplies, n.e.c.	(X)	-	-	69.4	-	(D)	-	1.4	(X)
3711-	Motor vehicles and car bodies	(X)	-	-	(D)	-	-	-	(D)	(X)
3714-	Motor vehicle parts and accessories	(X)	-	-	(D)	(D)	(D)	175.9	5.2	(X)
3721-	Aircraft	(X)	-	-	(D)	-	-	-	-	(X)
3728-	Aircraft equipment, n.e.c.	(X)	-	-	-	(D)	-	-	24.8	(X)
3732-	Boat building and repairing	(X)	-	-	(D)	-	-	-	(D)	(X)
3769-	Space vehicle equipment, n.e.c.	(X)	-	-	-	-	-	-	3.1	(X)
3824-	Fluid meters and counting devices	(X)	-	-	-	9.2	-	-	-	(X)
3841-	Surgical and medical instruments	(X)	-	-	-	-	-	-	(D)	(X)

See footnotes at end of table.

Table 5c-1. Industry-Product Analysis—Shipments by Product Class and Industry: 1982—Con.

[Million dollars. Table shows where products of an industry (referred to as primary and listed in table 6a) are made and what products are made by establishments classified in an industry. Read down an industry column to find what products are produced in an industry. Only those product groups that have at least \$2 million in shipments from establishments classified in one of industries included in this chapter are shown. Read across to determine where products of industries in this chapter are produced. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column. Specified "Other industries" are listed in table 5c-2 if they account for more than \$5 million of products primary to this chapter. For meaning of abbreviations and symbols, see explanatory text. For explanation of terms, see appendixes]

1982 product code	Product group, product class, and miscellaneous receipts	All industries	Automatic merchandising machines (SIC 3581)	Commercial laundry equipment (SIC 3582)	Refrigeration and heating equipment (SIC 3585)	Measuring and dispensing pumps (SIC 3586)	Service industry machinery, n.e.c. (SIC 3589)	Carburators, pistons, rings, and valves (SIC 3592)	Machinery, except electrical, n.e.c. (SIC 3599)	Other industries
	OTHER SHIPMENTS BY FOUR-DIGIT PRODUCT GROUP—Con.									
3842-	Surgical appliances and supplies	(X)	-	-	-	-	(D)	-	-	(X)
3949-	Sporting and athletic goods, n.e.c.	(X)	-	-	-	-	.4	-	2.7	(X)
3999-	Manufacturing industries, n.e.c.	(X)	-	-	-	(D)	-	(D)	(D)	(X)
	MISCELLANEOUS RECEIPTS									
93000 00	Receipts for work done for others on their materials	(X)	-	-	52.2	-	12.5	(D)	481.4	(X)
99980 13	Salas of scrap and refuse	(X)	.1	.3	21.4	(X)	1.7	3.1	(D)	(X)
99980 31	Receipts for installation or construction of products of the establishment	(X)	(D)	.6	17.1	(D)	3.5	-	6.2	(X)
99980 41	Receipts for research and development work ..	(X)	(X)	(X)	(D)	(D)	(X)	-	(D)	(X)
99980 61	Receipts for repair work	(X)	(D)	(D)	(D)	(D)	5.4	(D)	66.9	(X)
99980 98	Other miscellaneous receipts, including receipts for repair work, etc.	(X)	.1	1.3	59.6	.3	9.6	.8	45.8	(X)
99980 00	Miscellaneous receipts, n.s.k.	(X)	(D)	(D)	(D)	(D)	2.0	(D)	46.9	(X)
99989 00	Sales of products bought and resold without further manufacture, processing, or assembly at establishment	(X)								
			11.5	13.2	604.8	39.2	121.2	20.8	127.8	(X)

Table 5c-2. Industry-Product Analysis—Other Industries With Shipments of Primary Products: 1982

[Million dollars. Table is a continuation of table 5c-1 and shows where products of industries in this chapter (referred to as primary products and listed in table 6a) are made. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column of table 5c-1. Specified "Other industries" are listed in this table if they account for more than \$5 million of products primary to this chapter. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

1982 product code	Other industries	Value	1982 product code	Other industries	Value
3582-	COMMERCIAL LAUNDRY EQUIPMENT		3592-	CARBURETORS, PISTONS, RINGS, AND VALVES	
	3531 Construction machinery	(D)		3361 Aluminum foundries	(D)
	3633 Household laundry equipment	(D)		3494 Valves and pipe fittings	(D)
3585-	REFRIGERATION AND HEATING EQUIPMENT			3519 Internal combustion engines, n.e.c.	25.4
	3069 Fabricated rubber products, n.e.c.	(D)		3561 Pumps and pumping equipment	(D)
	3433 Heating equipment, except electric	23.0		3569 General industrial machinery, n.a.c.	(D)
	3443 Fabricated plate work (boiler shops)	8.0		3714 Motor vehicle parts and accessories	32.7
	3469 Metal stampings, n.e.c.	6.2	3599-	MACHINERY, EXCEPT ELECTRICAL, N.E.C.	
	3494 Valves and pipe fittings	(D)		3293 Gaskets, packing, and sealing devices	13.6
	3511 Turbines and turbine generator sets	(D)		3321 Gray iron foundries	5.9
	3519 Internal combustion engines, n.e.c.	(D)		3361 Aluminum foundries	5.8
	3523 Farm machinery and equipment	(D)		3443 Fabricated plate work (boiler shops)	9.0
	3531 Construction machinery	(D)		3444 Sheet metal work	12.4
	3559 Special industry machinery, n.e.c.	(D)		3451 Screw machine products	6.1
	3561 Pumps and pumping equipment	(D)		3469 Metal stampings, n.e.c.	16.2
	3564 Blowers and fans	(D)		3471 Plating and polishing	5.2
	3568 Power transmission equipment, n.a.c.	(D)		3489 Ordnance and accessories, n.a.c.	(D)
	3632 Household refrigerators and freezers	(D)		3494 Valves and pipe fittings	79.7
	3714 Motor vehicle parts and accessories	(D)		3499 Fabricated metal products, n.e.c.	5.7
	3799 Transportation equipment, n.a.c.	(D)		3519 Internal combustion engines, n.a.c.	27.4
3586-	MEASURING AND DISPENSING PUMPS			3523 Farm machinery and equipment	6.6
	3494 Valves and pipe fittings	(D)		3531 Construction machinery	8.6
	3561 Pumps and pumping equipment	(D)		3533 Oil field machinery	17.2
3589-	SERVICE INDUSTRY MACHINERY, N.E.C.			3535 Conveyors and conveying equipment	8.6
	2599 Furniture and fixtures, n.a.c.	10.7		3536 Hoists, cranes, and monorails	10.7
	3443 Fabricated plate work (boiler shops)	6.7		3541 Machine tools, metal cutting types	8.8
	3469 Metal stampings, n.e.c.	(D)		3542 Machine tools, metal forming types	(D)
	3531 Construction machinery	(D)		3544 Special dies, tools, jigs, and fixtures	40.5
	3532 Mining machinery	(D)		3545 Machine tool accessories	12.4
	3535 Conveyors and conveying equipment	16.8		3546 Power driven hand tools	(D)
	3559 Special industry machinery, n.e.c.	5.4		3549 Metalworking machinery, n.e.c.	10.4
	3561 Pumps and pumping equipment	11.0		3551 Food products machinery	5.9
	3564 Blowers and fans	16.1		3559 Special industry machinery, n.e.c.	23.9
	3569 General industrial machinery, n.e.c.	31.5		3561 Pumps and pumping equipment	57.9
	3631 Household cooking equipment	(D)		3569 General industrial machinery, n.e.c.	16.1
	3635 Household vacuum cleaners	(D)		3644 Noncurrent-carrying wiring devices	(D)
	3639 Household appliances, n.e.c.	67.8		3714 Motor vehicle parts and accessories	39.0
	3731 Ship building and repairing	(D)		3728 Aircraft equipment, n.a.c.	15.4
	3823 Process control instruments	(D)		3731 Ship building and repairing	6.8
				3795 Tanks and tank components	(D)
				3799 Transportation equipment, n.e.c.	6.4

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
AUTOMATIC MERCHANDISING MACHINES							
3581- --	Total -----	(NA)	(X)	445.7	(NA)	(X)	396.2
35811 --	Automatic merchandising machines:						
35811 00	Automatic merchandising machines, coin-operated (vending):						
	As reported in the census of manufactures -----	34	(X)	334.1	36	(X)	294.9
	As reported in the Current Industrial Report MA-35U, Coin-Operated Vending Machines -----	(NA)	(X)	318.9	(NA)	(X)	302.4
	Beverage vending machines:						
	Hot beverages:						
	Instant freeze-dried or liquid concentrate:						
35811 01	Nonoffice type ----- thousands--	(NA)	7.2	6.5	(NA)	20.6	13.6
35811 03	Office type ----- do--	(NA)			(NA)		
35811 04	Fresh brew, coffee, and combinations ----- do--	(NA)	6.2	13.9	(NA)	12.6	15.2
	Soft drink:						
35811 05	Canned beverage (refrigerated) ³ ----- do--	(NA)	210.3	190.1	(NA)	127.9	102.4
35811 07	Bottled beverage (refrigerated) ³ ----- do--	(NA)			(NA)	57.9	38.4
35811 09	Cup (postmix) ----- do--	(NA)	(D)	(D)	(NA)	9.1	18.6
35811 06	Packaged milk and juice ----- do--	(NA)	1.4	3.0	(NA)	8.6	10.4
35811 19	Other vending machines for beverages ⁴ ----- do--	(NA)	(D)	(D)			
	Confections and food vending machines:						
35811 21	Bulk confection and charms ----- do--	(NA)	38.3	2.0	(NA)	202.9	5.1
35811 22	Candy bar, cookie, and cracker ----- do--	(NA)	8.7	8.6	(NA)	15.5	9.3
35811 23	Hot canned food and soup ----- do--	(NA)	1.9	2.7	(NA)	3.5	2.7
35811 24	Ice cream and frozen ices ----- do--	(NA)			(NA)	(⁵)	(⁵)
35811 25	Multipurpose food and confections ----- do--	(NA)	(⁵)	(⁵)	(NA)	(⁵)	(⁵)
35811 27	Pastry ----- do--	(NA)	.3	.4	(NA)	(⁵)	(⁵)
35811 28	Bagged snacks and chips ----- do--	(NA)	27.4	40.0	(NA)	27.9	33.3
35811 29	Other vending machines for confections and foods ⁷ ----- do--	(NA)	⁸ 4.7	⁸ 16.2	(NA)	⁵ 11.9	⁵ 14.7
	Other vending machines:						
35811 31	Cigarettes ----- do--	(NA)	10.5	9.5	(NA)	26.9	16.4
35811 32	Water and ice in bulk ----- do--	(NA)	.3	1.5	(NA)	(⁵)	(⁵)
35811 33	Ice, prebagged ----- do--	(NA)			(NA)	(⁵)	(⁵)
35811 35	Postage stamp ----- do--	(NA)	5.9	1.4	(NA)	5.1	.5
35811 49	All other vending machines ⁹ ----- do--	(NA)	179.0	23.2	(NA)	⁸ 122.5	⁸ 21.8
35812 --	Coin-operated mechanisms and parts for automatic merchandising machines -----	(NA)	(X)	96.2	(NA)	(X)	84.3
35812 51	Coin-operated mechanisms (for sale separately) ----- thousands--	14	565.0	60.5	14	[*] 955.9	63.4
35812 69	Parts for automatic merchandising machines, except coin-operated mechanisms -----	16	(X)	35.3	15	(X)	19.9
35812 00	Coin-operated mechanisms and parts for automatic merchandising machines, n.s.k.	(NA)	(X)	.4	(NA)	(X)	1.0
35810 00	Automatic merchandising machines, n.s.k., typically for establishments with 10 employees or more (see note) -----	(NA)	(X)	4.1	(NA)	(X)	5.9
35810 02	Automatic merchandising machines, n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA)	(X)	11.4	(NA)	(X)	11.1
COMMERCIAL LAUNDRY EQUIPMENT							
3582- --	Total -----	(NA)	(X)	338.7	(NA)	(X)	233.6
35820 --	Commercial laundry, dry cleaning, and pressing machinery and equipment:						
	Commercial laundry equipment and laundry presses:						
35820 21	Washers only ----- thousands--	8	74.8	27.2	9	(S)	27.6
35820 22	Extractors only ----- do--	4	(S)	2.0	4	.4	3.0
	Washer-extractor combinations:						
35820 13	Coin-operated, more than 16 lb load ----- do--	3	4.4	9.0	4	[*] 12.1	43.0
35820 14	Other than coin-operated ----- do--	9	6.0	71.1	10		
	Drying tumblers:						
35820 17	Coin-operated, more than 16 lb load ----- do--	6	31.8	34.8	10	(S)	44.1
35820 18	Other than coin-operated ----- do--	8	18.9	20.9	7	12.2	12.2
35820 26	Ironers, flatwork ----- do--	11	1.2	16.6	8	.4	6.8
35820 27	Presses, laundry ----- do--	6	2.8	10.0	4	2.2	8.6
35820 28	Other commercial laundry equipment ----- do--	20	[*] 4.0	28.7	12	(S)	24.0
	Parts, attachments, and accessories:						
35820 24	For washer-extractor combinations and drying tumblers (coin-operated, more than 16 lb load), and other than coin-operated commercial) -----	11	(X)	10.8	7	(X)	5.7
35820 25	For other commercial laundry, and pressing machinery and equipment, except dry cleaning -----	16	(X)	30.0	9	(X)	13.8
	Dry cleaning equipment and clothing presses:						
35820 34	Dry cleaning units ----- thousands--	7	(S)	11.0	3	[*] .4	3.4
35820 41	Presses, dry cleaning ----- do--	3	3.1	9.8	4	2.1	3.4
35820 43	Garment manufacturers' (needle trades) presses ----- do--	4	(S)	10.7	3	8.4	3.8
35820 81	Other dry cleaning equipment, including reclaiming units ----- do--	6			5	15.7	8.0
35820 91	Parts, attachments, and accessories -----	11	(X)	17.5	10	(X)	10.5
35820 00	Commercial laundry equipment, n.s.k., typically for establishments with 10 employees or more (see note) -----	(NA)	(X)	20.0	(NA)	(X)	11.0
35820 02	Commercial laundry equipment, n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA)	(X)	8.6	(NA)	(X)	4.7

See footnotes at end of table.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
	REFRIGERATION AND HEATING EQUIPMENT						
3585- --	Total -----	(NA)	(X)	11 035.6	(NA)	(X)	8 501.7
35851 --	Heat transfer equipment (except electrically operated						
35851 00	dehumidifiers), mechanically refrigerated, self-contained:						
	Heat transfer equipment (except electrically operated						
	dehumidifiers), mechanically refrigerated, self-contained:						
	As reported in the census of manufactures -----	152	(X)	2 908.0	123	(X)	2 251.2
	As reported in Current Industrial Report MA-35M,						
	Refrigeration, Air Conditioning, and Warm Air Heating						
	Equipment -----	(NA)	(X)	2 821.8	(NA)	(X)	2 165.5
	Evaporative condensers:						
35851 04	100 tons or less ----- thousands -----	(NA)	1.0	5.9	(NA)	1.3	4.8
35851 07	More than 100 tons ----- do -----	(NA)	1.1	16.9	(NA)	1.0	12.9
	Room fan-coil air conditioning units:						
35851 08	Vertical stack ----- do -----	(NA)	21.9	13.6	(NA)	(D)	(D)
35851 09	Vertical ----- do -----	(NA)	98.3	41.9	(NA)	107.3	23.6
35851 10	Horizontal ----- do -----	(NA)	87.0	19.2	(NA)	91.6	14.8
35851 11	Room air induction units ----- do -----	(NA)	(D)	(D)	(NA)	(D)	(D)
	Central station air conditioning units (motor driven fan-						
	type):						
35851 13	Draw through ----- do -----	(NA)	42.8	156.1	(NA)	33.9	71.2
35851 15	Blow through ----- do -----	(NA)	8.8	38.2	(NA)	10.0	23.2
35851 17	Heating and ventilating ----- do -----	(NA)	7.4	24.6	(NA)	8.5	11.9
35851 01	Packaged terminal air conditioners ----- do -----	(NA)	135.7	183.1	(NA)	261.8	82.1
35851 03	Packaged terminal heat pumps ----- do -----	(NA)	52.5	30.3	(NA)	(NA)	(NA)
	Unit coolers (refrigeration):						
	Ceiling and wall-mounted types:						
35851 18	1,000 Btu/hr or less ----- do -----	(NA)	19.2	1.3	(NA)	21.6	1.0
35851 19	1,001 to 2,000 Btu/hr ----- do -----	(NA)	29.5	3.2	(NA)	41.0	2.5
35851 20	2,001 to 4,000 Btu/hr ----- do -----	(NA)	15.3	2.3	(NA)	25.6	2.9
35851 21	4,001 to 6,000 Btu/hr ----- do -----	(NA)	16.0	3.2	(NA)	21.1	3.3
35851 22	6,001 to 8,000 Btu/hr ----- do -----	(NA)	17.5	4.1	(NA)	19.7	3.8
35851 23	8,001 to 12,000 Btu/hr ----- do -----	(NA)	25.9	7.6	(NA)	27.8	6.6
35851 24	12,001 to 18,000 Btu/hr ----- do -----	(NA)	20.2	9.4	(NA)	19.6	7.4
35851 25	More than 18,000 Btu/hr ----- do -----	(NA)	20.1	27.7	(NA)	21.3	19.8
35851 57	Floor-mounted dry and spray types ----- do -----	(NA)	(D)	(D)	(NA)	.3	2.7
	Air cooled refrigerant condensers (remote type):						
35851 29	30 tons or less ----- do -----	(NA)	12.4	13.8	(NA)	11.7	10.3
35851 31	40 tons ----- do -----	(NA)	1.5	5.8	(NA)	1.3	4.2
35851 33	50 tons or more ----- do -----	(NA)	2.5	14.3	(NA)	2.5	9.6
	Miscellaneous heat transfer equipment:						
	Shell-and-tube, shell-and-coil, shell-and-u-tube, tube-						
	in-tube:						
35851 35	Condensers -----	(NA)	(X)	29.9	(NA)	(X)	10.3
35851 36	Liquid coolers -----	(NA)	(X)	32.0	(NA)	(X)	19.2
35851 37	Liquid-suction heat exchangers, and refrigerant liquid						
	receivers -----	(NA)	(X)	25.7	(NA)	(X)	16.1
	Central system finned coils (air conditioning and						
	refrigeration type) used with but not including						
	means for air circulation:						
35851 38	Standard steam and steam distributing tube -----	(NA)	(X)	15.0	(NA)	(X)	13.8
35851 39	Standard water cooling and/or heating and						
	cleanable tube water -----	(NA)	(X)	41.9	(NA)	(X)	28.1
35851 40	Volatile refrigerant cooling -----	(NA)	(X)	8.1	(NA)	(X)	7.3
	Coil sales by original equipment manufacturers						
	intended for resale or assembly into equipment by						
	other manufacturers (all types):						
35851 81	Copper only -----	(NA)	(X)	9.6	(NA)	(X)	(¹⁰)
35851 82	Copper and aluminum -----	(NA)	(X)	113.6	(NA)	(X)	113.1
35851 83	Aluminum only -----	(NA)	(X)	44.0	(NA)	(X)	(¹⁰)
35851 84	All others (including steel) -----	(NA)	(X)		(NA)	(X)	1036.7
35851 67	Factory-assembled, refrigeration type, finned gravity						
	coils including wetted-surface dehumidifiers -----	(NA)	(X)	7.1	(NA)	(X)	3.9
	Centrifugal liquid chilling packages:						
	Hermetic-type:						
35851 46	200 hp or less ----- thousands -----	(NA)	.8	31.6	(NA)	.7	15.2
35851 49	201 to 300 hp ----- do -----	(NA)	1.0	37.6	(NA)	.7	18.8
35851 50	301 to 400 hp ----- do -----	(NA)	.8	43.1	(NA)	.5	14.0
35851 51	401 to 500 hp ----- do -----	(NA)	.3	18.4	(NA)	.3	13.3
35851 52	501 to 1,000 hp ----- do -----	(NA)	.3	40.9	(NA)	.5	29.6
35851 53	More than 1,000 hp ----- do -----	(NA)	(¹¹)	(¹¹)	(NA)		
35851 55	Open-type (all sizes) ----- do -----	(NA)	11.6	1188.9	(NA)	.3	22.6
35851 75	Absorption liquid-chilling systems ----- do -----	(NA)	.2	14.5	(NA)	.6	19.8
35851 76	Absorption and open-type absorption systems ----- do -----	(NA)	1.5	18.0	(NA)	2.3	12.2
	Mobile vehicle refrigeration systems:						
35851 77	Mechanical refrigeration systems for railway freight						
	cars ----- do -----	(NA)	-	-	(NA)		
35851 78	Mechanical refrigeration systems for other mobile						
	vehicles (including trucks, trailers, vans, etc.) ----- do -----	(NA)	68.8	222.6	(NA)	76.5	158.7
	Mobile vehicle mechanical air-conditioning systems:						
35851 79	For passenger automobiles ----- do -----	(NA)	5 651.3	801.8	(NA)	9 459.5	880.2
35851 80	For truck, agriculture, and construction machinery						
	cabs (excluding mobile home, bus, and truck van						
	systems) ----- do -----	(NA)	1 064.4	102.0	(NA)	2 452.8	120.6
	Ice-making machines:						
	Self contained ice cube makers:						
35851 82	Automatic, less than 200 lb ----- do -----	(NA)	52.6	30.3	(NA)	57.5	23.9
35851 64	Automatic, 201 lb to 300 lb ----- do -----	(NA)	19.4	18.2	(NA)	29.3	21.2
35851 66	Automatic, 301 lb or more ----- do -----	(NA)	37.9	70.4	(NA)	38.7	53.6

See footnotes at end of table.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
	REFRIGERATION AND HEATING EQUIPMENT— Con.						
35851 —	Heat transfer equipment (except electrically operated dehumidifiers), mechanically refrigerated, self-contained— Con.						
35851 00	Heat transfer equipment (except electrically operated dehumidifiers), mechanically refrigerated, self-contained— Con. As reported in Current Industrial Report MA-35M, Refrigeration, Air Conditioning, and Warm Air Heating Equipment—Con. Miscellaneous heat transfer equipment—Con. Ice-making machines—Con. Self-contained flake or chip machines:						
35851 72	300 lb or less ----- thousands--	(NA)	6.0	8.9	(NA)	6.4	4.3
35851 74	301 lb or more ----- do--	(NA)	16.9	27.6	(NA)	18.8	20.5
35851 73	Not self-contained ----- do--	(NA)	3.4	7.1	(NA)	5.8	7.0
35851 71	Combination ice makers and ice dispensers ----- do--	(NA)	12.0	19.9	(NA)	6.2	9.3
35851 70	Combination ice makers and drink dispensers ----- do--	(NA)	2.4	5.8	(NA)	2.4	3.9
35851 87	Reciprocating liquid chillers:						
35851 88	20 hp or less ----- do--	(NA)	3.5	27.8	(NA)	2.1	7.8
35851 89	21 to 49 hp ----- do--	(NA)	2.4	25.3	(NA)	2.3	20.4
35851 90	50 to 75 hp ----- do--	(NA)	2.5	40.8	(NA)	2.0	22.3
35851 96	More than 75 hp ----- do--	(NA)	3.3	85.7	(NA)	2.3	41.0
	Factory-fabricated water-cooling towers ----- do--	(NA)	11.2	83.6	(NA)	12.2	45.6
35852 —	Unitary air conditioners:						
35852 00	Unitary air conditioners:						
	As reported in the census of manufactures -----	65	(X)	1 972.1	59	(X)	1 673.0
	As reported in Current Industrial Report MA-35M, Refrigeration, Air Conditioning, and Warm Air Heating Equipment -----	(NA)	(X)	1 942.4	(NA)	(X)	1 643.9
35852 30	Air Conditioners, except window and wall type:						
	Recreational vehicle air conditioners ----- thousands--	(NA)	142.2	53.5	(NA)	(NA)	(NA)
	Single package, with or without evaporator fan:						
	Horizontal:						
35852 32	Less than 27,000 Btu/hr ----- do--	(NA)	19.7	9.7	(NA)	247.5	75.1
35852 33	27,000 to 32,999 Btu/hr ----- do--	(NA)	12.4	8.0	(NA)	28.8	11.8
35852 35	33,000 to 53,999 Btu/hr ----- do--	(NA)	67.3	52.2	(NA)	98.8	57.7
35852 37	54,000 to 64,999 Btu/hr ----- do--	(NA)	21.8	25.1	(NA)	29.9	24.2
35852 39	65,000 to 96,999 Btu/hr ----- do--	(NA)	10.1	22.5	(NA)	10.7	16.1
35852 41	97,000 to 134,999 Btu/hr ----- do--	(NA)	5.5	16.8	(NA)	8.9	19.1
35852 43	135,000 to 184,999 Btu/hr ----- do--	(NA)	3.6	14.8	(NA)	4.3	13.4
35852 45	185,000 to 249,999 Btu/hr ----- do--	(NA)	1.5	10.0	(NA)	1.2	5.6
35852 47	250,000 to 319,999 Btu/hr ----- do--	(NA)	1.2	10.2	(NA)	.8	4.4
35852 49	320,000 to 379,999 Btu/hr ----- do--	(NA)	.7	8.3	(NA)	.6	4.1
35852 51	380,000 Btu/hr or more ----- do--	(NA)	2.3	35.2	(NA)	.7	9.8
	Other than horizontal:						
35852 34	Less than 33,000 Btu/hr ----- do--	(NA)	1.2	1.2	(NA)	2.4	1.3
35852 36	33,000 to 53,999 Btu/hr ----- do--	(NA)	7.1	10.2	(NA)	13.2	13.9
35852 38	54,000 to 64,999 Btu/hr ----- do--	(NA)	5.2	9.7	(NA)	7.2	9.0
35852 40	65,000 to 96,999 Btu/hr ----- do--	(NA)	2.6	6.4	(NA)	3.1	4.7
35852 42	97,000 to 134,999 Btu/hr ----- do--	(NA)	2.5	8.3	(NA)	2.5	4.9
35852 44	135,000 to 184,999 Btu/hr ----- do--	(NA)	1.8	8.0	(NA)	1.8	4.8
35852 46	185,000 to 249,999 Btu/hr ----- do--	(NA)	.8	4.5	(NA)	.5	1.9
35852 48	250,000 Btu/hr or more ----- do--	(NA)	1.2	11.7	(NA)	.9	7.1
	Year round air conditioners, single package and remote- condenser type (except heat pumps):						
35852 21	Less than 33,000 Btu/hr ----- do--	(NA)	39.5	37.4	(NA)	65.6	44.3
35852 22	33,000 to 38,999 Btu/hr ----- do--	(NA)	22.0	23.0	(NA)	36.7	23.1
35852 23	39,000 to 43,999 Btu/hr ----- do--	(NA)	7.5	8.1	(NA)	14.4	9.9
35852 25	44,000 to 53,999 Btu/hr ----- do--	(NA)	12.5	16.1	(NA)	19.1	16.8
35852 26	54,000 to 64,999 Btu/hr ----- do--	(NA)	31.3	53.3	(NA)	33.2	37.4
35852 27	65,000 to 134,999 Btu/hr ----- do--	(NA)	25.7	99.4	(NA)	23.2	53.3
35852 29	135,000 to 184,999 Btu/hr ----- do--	(NA)	5.9	32.0	(NA)	5.1	20.0
35852 91	185,000 to 249,999 Btu/hr ----- do--	(NA)	3.4	31.3	(NA)	2.3	12.8
35852 92	250,000 to 319,999 Btu/hr ----- do--	(NA)	1.3	13.5	(NA)	1.6	12.4
35852 93	320,000 to 379,999 Btu/hr ----- do--	(NA)	.6	7.8	(NA)	.8	7.2
35852 94	380,000 to 539,999 Btu/hr ----- do--	(NA)	.5	10.1	(NA)	.7	8.2
35852 98	540,000 to 639,999 Btu/hr ----- do--	(NA)	.5	7.2	(NA)	.3	3.8
35852 99	640,000 Btu/hr or more ----- do--	(NA)	.5	13.5	(NA)	.3	7.4
	Air source heat pumps (except room air conditioners):						
	Single package:						
35852 61	Less than 27,000 Btu/hr ----- do--	(NA)	18.8	13.6	(NA)	44.7	20.0
35852 62	27,000 to 41,999 Btu/hr ----- do--	(NA)	32.8	31.2	(NA)	70.7	44.2
35852 63	42,000 to 64,999 Btu/hr ----- do--	(NA)	21.5	30.6	(NA)	43.8	38.5
35852 64	65,000 Btu/hr or more ----- do--	(NA)	7.8	30.1	(NA)	6.8	15.3
	Split system:						
35852 67	Less than 27,000 Btu/hr ----- do--	(NA)	119.6	59.8	(NA)	93.2	32.4
35852 68	27,000 to 41,999 Btu/hr ----- do--	(NA)	154.4	102.7	(NA)	200.4	97.0
35852 69	42,000 to 64,999 Btu/hr ----- do--	(NA)	48.9	51.1	(NA)		
35852 70	65,000 Btu/hr or more ----- do--	(NA)	4.9	11.7	(NA)	76.9	55.2

See footnotes at end of table.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
	REFRIGERATION AND HEATING EQUIPMENT— Con.						
35852 —	Unitary air conditioners—Con.						
35852 00	Unitary air conditioners—Con.						
35852 60	Water source heat pumps (except room air conditioners) ----- thousands..	(NA)	86.1	68.1	(NA)	(NA)	(NA)
	Split system air conditioning units:						
	Air conditioning condensing units:						
35852 71	Less than 22,000 Btu/hr ----- do..	(NA)	211.1	57.9	(NA)	171.1	31.5
35852 72	22,000 to 26,999 Btu/hr ----- do..	(NA)	269.0	81.9	(NA)	316.1	69.2
35852 73	27,000 to 32,999 Btu/hr ----- do..	(NA)	213.9	87.0	(NA)	319.6	91.1
35852 74	33,000 to 38,999 Btu/hr ----- do..	(NA)	246.8	122.8	(NA)	381.2	128.0
35852 75	39,000 to 43,999 Btu/hr ----- do..	(NA)	79.6	46.8	(NA)	132.0	56.7
35852 76	44,000 to 53,999 Btu/hr ----- do..	(NA)	98.9	69.1	(NA)	141.9	64.8
35852 78	54,000 to 64,999 Btu/hr ----- do..	(NA)	92.9	78.1	(NA)	118.6	65.4
35852 79	65,000 to 96,999 Btu/hr ----- do..	(NA)	14.6	21.5	(NA)	18.8	18.7
35852 80	97,000 to 134,999 Btu/hr ----- do..	(NA)	10.1	19.4	(NA)	12.3	16.5
35852 81	135,000 to 184,999 Btu/hr ----- do..	(NA)	6.2	17.6	(NA)	6.7	13.2
35852 82	185,000 to 249,999 Btu/hr ----- do..	(NA)	2.5	9.9	(NA)	2.9	7.7
35852 83	250,000 to 319,999 Btu/hr ----- do..	(NA)	1.2	5.9	(NA)	1.4	4.3
35852 84	320,000 to 379,999 Btu/hr ----- do..	(NA)	.9	5.2	(NA)	1.1	4.4
35852 87	380,000 to 539,999 Btu/hr ----- do..	(NA)	.8	6.1	(NA)	.9	4.7
35852 88	540,000 to 639,999 Btu/hr ----- do..	(NA)	.5	4.6	(NA)	.6	3.7
35852 89	640,000 Btu/hr or more ----- do..	(NA)	.7	9.8	(NA)	.6	5.8
	Air conditioning coils:						
35852 85	With blower ----- do..	(NA)	550.9	148.7	(NA)	621.8	134.9
35852 86	Without blower ----- do..	(NA)	614.3	71.8	(NA)	901.7	75.7
35853 —	Commercial refrigerators and related equipment -----	(NA)	(X)	1 070.8	(NA)	(X)	759.4
35853 12	Sectional coolers or cooling rooms of the prefabricated (factory produced) type, including walk-in, roll-in, and combination cooler-display types ----- thousands..	62	**67.9	223.3	52	(S)	158.6
	Reach-in refrigerators and reach-in type vertical display cabinets, with solid or glazed doors:						
35853 15	For normal temperature application, i.e., not intended for frozen foods, ice cream, etc. ----- do..	38	*128.5	142.4	29	74.0	68.2
35853 18	For low temperature application ----- do..	32	43.5	94.9	26	29.9	53.9
	Display cases for meats, dairy products, produce, and other perishables, operated at normal temperatures:						
35853 22	Closed ----- do..	19	**16.0	25.9	13	**11.2	16.2
	Open self-service:						
35853 23	One level ----- do..	8	*24.7	42.3	9	26.0	30.8
35853 28	Multilevel ----- do..	11	31.3	79.5	12	31.7	62.9
	Display cases and cabinets for frozen foods, ice cream, and other foods operated at low temperatures, except coin-operated:						
	Frozen food display cases, open, self-service:						
35853 31	One level ----- do..	9	13.2	38.1	10	32.2	39.2
35853 33	Multilevel ----- do..	7	11.8	49.3	6	11.0	32.6
35853 35	Frozen food cabinets, closed, other than reach-in type ----- do..	10	14.8	19.8	5	**6.4	6.6
35853 36	Ice cream counter freezers, including frozen custard machines ----- do..	4	(S)	2.4	3	(S)	9.8
35853 38	Ice cream dispensing and hardening cabinets ----- do..	6	13.7	19.1	6	12.3	17.5
35853 43	Mechanical drinking water coolers:						
	As reported in the census of manufactures -----	7	(X)	95.0	12	(X)	70.6
	As reported in Current Industrial Report MA-35M, Refrigeration, Air Conditioning, and Warm Air Heating Equipment ----- thousands..	(NA)	355.4	87.8	(NA)	335.2	65.2
	Mechanical beverage cooling and dispensing equipment, except coin-operated:						
35853 52	Bottled beverage coolers, dry and wet types ----- do..	6	(S)	106.5	13	(S)	21.5
35853 57	Bulk beverage dispensers, including malt dispensers and precooler cabinets ----- do..	8			12	(S)	67.3
35853 73	Farm and dairy milk coolers, including immersion type and bulk tank storage coolers ----- do..	7	**8.6	13.2	4	(S)	18.7
35853 97	Other commercial refrigerators, including dough retarders, egg refrigerators, environmental control equipment, laboratory and industrial refrigerators, mortuary refrigera- tors, etc. -----	33	(X)	87.0	26	(X)	62.5
35853 00	Commercial refrigerators and related equipment, n.s.k. -----	(NA)	(X)	32.1	(NA)	(X)	24.5
35854 —	Compressors and compressor units, all refrigerants:						
35854 00	Compressors and compressor units, all refrigerants:						
	As reported in the census of manufactures -----	43	(X)	1 734.7	40	(X)	1 580.3
	As reported in Current Industrial Report MA-35M, Refrigeration, Air Conditioning, and Warm Air Heating Equipment -----	(NA)	(X)	1 711.8	(NA)	(X)	1 508.9
	Refrigerants, except ammonia:						
	10 hp or less:						
	Hermetic-type motor compressors:						
35854 11	Less than 3 hp ----- thousands..	(NA)	8 648.2	588.8	(NA)	11 159.6	507.9
35854 38	3 hp to 10 hp ----- do..	(NA)	1 731.0	357.8	(NA)	1 836.3	265.2
	Open-type compressors (with/without motors):						
35854 74	3 hp or less ----- do..	(NA)	11.9	4.1	(NA)	16.8	3.7
35854 75	4 hp to 10 hp ----- do..	(NA)			(NA)		

See footnotes at end of table.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
	REFRIGERATION AND HEATING EQUIPMENT— Con.						
35854 — 35854 00	Compressors and compressor units, all refrigerants—Con. Compressors and compressor units, all refrigerants—Con. As reported in Current Industrial Report MA-35M, Refrigeration, Air Conditioning, and Warm Air Heating Equipment—Con. Refrigerants, except ammonia—Con. More than 10 hp (open- and hermetic-types):						
35854 46	15 hp ----- thousands--	(NA)	27.2	20.2	(NA)	75.9	57.2
35854 47	20 hp ----- do--	(NA)	19.2	18.1			
35854 48	25 hp ----- do--	(NA)	11.1	12.9			
35854 49	30 hp ----- do--	(NA)	13.9	16.0			
35854 51	40 hp ----- do--	(NA)	11.0	17.4			
35854 52	50 hp ----- do--	(NA)	2.5	5.8	(NA)	2.5	3.9
35854 53	60 hp ----- do--	(NA)	1.9	6.0	(NA)	2.2	4.7
35854 54	75 hp ----- do--	(NA)	2.2	8.4	(NA)	3.1	7.5
35854 55	100 hp ----- do--	(NA)	1.5	5.9	(NA)	1.7	4.8
35854 56	More than 100 hp ----- do--	(NA)	2.1	17.6	(NA)	2.1	10.1
35854 59	Automotive air conditioning compressors open-type, with or without motor ----- do--	(NA)	6 946.2	592.6	(NA)	10 840.1	628.9
35854 81	Screw type ----- do--	(NA)	2.6	13.6			
35854 86	Ammonia refrigerants: Less than 75 hp ----- do--	(NA)	.4	3.8	(NA)	.5	3.0
35854 68	75 hp ----- do--	(NA)	.1	1.5	(NA)	.2	2.0
35854 69	100 hp ----- do--	(NA)	(¹²)	(¹²)	(NA)	.7	10.0
35854 71	101 to 200 hp ----- do--	(NA)	12.6	1210.7			
35854 72	201 hp or more ----- do--	(NA)	.4	10.5			
35855 — 35855 00	Refrigeration condensing units (complete): Condensing units, all refrigerants, except ammonia (complete): As reported in the census of manufactures -----	40	(X)	196.9	40	(X)	175.6
	As reported in Current Industrial Report MA-35M, Refrigeration, Air Conditioning, and Warm Air Heating Equipment -----	(NA)	(X)	185.8	(NA)	529.5	160.0
35855 10	Air-cooled: Open-type, less than 15 hp ----- thousands--	(NA)	1.8	1.9	(NA)	2.1	1.0
	Hermetic-type:						
35855 01	1/8 hp or less ----- do--	(NA)	171.8	19.2	(NA)	237.6	20.3
35855 02	1/6 hp or less ----- do--	(NA)					
35855 03	1/5 hp ----- do--	(NA)					
35855 27	1/4 hp ----- do--	(NA)					
35855 28	1/3 hp ----- do--	(NA)					
35855 29	1/2 hp ----- do--	(NA)	(¹³)	(¹³)	(NA)	93.3	12.3
35855 30	3/4 hp ----- do--	(NA)	13100.1	1319.8	(NA)	86.2	20.5
35855 31	1 hp ----- do--	(NA)	23.7	9.0			
35855 32	1 1/2 hp ----- do--	(NA)	16.4	9.8	(NA)	23.2	9.0
35855 33	2 hp ----- do--	(NA)	16.4	12.3	(NA)	20.0	9.8
35855 34	2 1/2 hp ----- do--	(NA)	12.4	16.4	(NA)	20.9	15.3
35855 35	3 hp ----- do--	(NA)	22.4	49.6	(NA)	28.6	38.1
35855 38	More than 3 hp but less than 15 hp ----- do--	(NA)					
35855 46	Water-cooled: Open-type, 10 hp or less ----- do--	(NA)	.3	.3	(NA)	.4	.4
	Hermetic-type:						
35855 48	1 1/2 hp or less ----- do--	(NA)	6.4	2.8	(NA)	10.7	4.0
35855 53	2 hp ----- do--	(NA)	1.0	.9			
35855 54	3 hp ----- do--	(NA)	.7	.9	(NA)	.7	.7
35855 55	4 hp ----- do--	(NA)	.6	1.0			
35855 56	5 hp ----- do--	(NA)	.3	.6	(NA)	.5	.8
35855 57	7 1/2 hp ----- do--	(NA)	.2	.7	(NA)	.3	.4
35855 59	10 hp ----- do--	(NA)					
35855 61	Water or air-cooled (open- and hermetic-type): 15 hp ----- do--	(NA)	2.5	13.6	(NA)	1.2	3.9
35855 62	20 hp ----- do--	(NA)	1.0	6.7	(NA)	1.1	4.7
35855 63	25 hp ----- do--	(NA)	.5	3.9	(NA)	.6	3.8
35855 64	30 hp ----- do--	(NA)	.5	4.5	(NA)	.8	5.0
35855 70	40 hp or more ----- do--	(NA)	1.0	11.6	(NA)	1.3	10.0
35855 0A	Refrigeration condensing units, n.s.k. -----	(NA)	(X)	-	(NA)	(X)	-
35856 — 35856 11	Room air conditioners and dehumidifiers -----	(NA)	(X)	897.5	32	(X)	720.4
	Dehumidifiers, electrically operated, mechanically refrigerated, self-contained: As reported in the census of manufactures -----	14	(X)	72.8	(NA)	(NA)	(NA)
	As reported in Current Industrial Report MA-35M, Refrigeration, Air Conditioning, and Warm Air Heating Equipment -----	(NA)	(X)	71.1	(NA)	351.2	40.7
35856 30	Room air conditioners: As reported in the census of manufactures -----	14	(X)	823.1	(NA)	(NA)	(NA)
	As reported in Current Industrial Report MA-35M, Refrigeration, Air Conditioning, and Warm Air Heating Equipment -----	(NA)	(X)	821.2	(NA)	3 035.0	681.6
35856 31	Room air conditioners (all types, including consoles): 5,999 Btu/hr or less ----- thousands--	(NA)	635.0	109.3	(NA)	513.7	57.8
35856 33	6,000 to 6,999 Btu/hr: 7 1/2 amp., 115 volts ----- do--	(NA)	115.3	25.5	(NA)	175.4	25.8
35856 35	All other ----- do--	(NA)			(NA)	19.6	2.9
35856 37	7,000 to 7,999 Btu/hr: 7 1/2 amp., 115 volts ----- do--	(NA)	162.4	38.1	(NA)	73.8	13.0
35856 39	All other ----- do--	(NA)	78.7	17.2	(NA)	13.0	2.2
35856 41	8,000 to 8,999 Btu/hr: 115 volts ----- do--	(NA)	128.4	32.3	(NA)	263.2	41.8
35856 43	208 to 230 volts ----- do--	(NA)	8.0	2.0	(NA)	28.3	4.9

See footnotes at end of table.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
	REFRIGERATION AND HEATING EQUIPMENT— Con.						
35856 — 35856 30	Room air conditioners and dehumidifiers —Con. Room air conditioners—Con. As reported in Current Industrial Report MA-35M, Refrigeration, Air Conditioning, and Warm Air Heating Equipment —Con. Room air conditioners (all types, including consoles)— Con. 9,000 to 9,999 Btu/hr:						
35856 45	115 volts ----- thousands..	(NA)	84.4	24.9	(NA)	63.7	12.7
35856 47	208 to 230 volts ----- do..	(NA)	88.6	24.4	(NA)	122.2	21.8
	10,000 to 10,999 Btu/hr:						
35856 51	115 volts ----- do..	(NA)	140.4	37.8	(NA)	178.9	33.0
35856 53	208 to 230 volts ----- do..	(NA)	30.1	9.0	(NA)	35.6	6.9
	11,000 to 12,999 Btu/hr:						
35856 55	115 volts ----- do..	(NA)	180.6	54.6	(NA)	181.1	39.1
35856 57	208 to 230 volts ----- do..	(NA)	150.8	47.0	(NA)	224.4	47.5
35856 61	13,000 to 14,999 Btu/hr ----- do..	(NA)	166.8	55.4	(NA)	224.1	54.5
35856 63	15,000 to 16,999 Btu/hr ----- do..	(NA)	73.2	24.1	(NA)	244.1	62.1
35856 65	17,000 to 19,999 Btu/hr ----- do..	(NA)	535.1	185.3	(NA)	494.2	122.7
35856 67	20,000 to 22,999 Btu/hr ----- do..	(NA)	108.0	41.8	(NA)	160.4	41.8
35856 68	23,000 to 25,999 Btu/hr ----- do..	(NA)	139.2	61.0	(NA)	204.1	60.6
35856 69	26,000 Btu/hr or more ----- do..	(NA)	58.2	31.5	(NA)	83.7	30.5
35856 0A	Room air conditioners and dehumidifiers, n.s.k. -----	(NA)	(X)	-	(NA)	(X)	-
35856 00	Room air conditioners and dehumidifiers, n.s.k. -----	(NA)	(X)	1.6	(NA)	(X)	-
35859 — 35859 01	Refrigeration end air conditioning equipment, n.e.c. -----	(NA)	(X)	428.9	(NA)	(X)	190.2
	Soda fountain equipment (cooler box, fountainette, and similar equipment) -----	13	(X)	80.5	9	(X)	21.0
35859 02	Beer dispensing equipment -----	5	(X)	18.5	8	(X)	11.4
35859 03	Evaporative air coolers -----	18	(X)	94.1	11	(X)	36.7
35859 04	Complete refrigeration systems shipped to other manufacturers for incorporation into a cabinet, vending machine, or household refrigerator -----	6	(X)	60.9	6	(X)	33.2
35859 09	Other refrigeration machinery and air conditioning equipment -----	36	(X)	174.9	26	(X)	69.6
35859 00	Refrigeration and air conditioning equipment, n.e.c., n.s.k. -----	(NA)	(X)	-	(NA)	(X)	18.3
3585A — 3585A 10	Warm air furnaces and humidifiers -----	(NA)	(X)	426.3	(NA)	(X)	(¹⁴)
	Warm air furnaces, including duct furnaces: As reported in the census of manufactures -----	48	(X)	389.9	(NA)	(X)	(¹⁴)
	As reported in Current Industrial Report MA-35M, Refrigeration, Air Conditioning, and Warm Air Heating Equipment -----	(NA)	(X)	387.4	(NA)	(NA)	302.5
3585A 03	Forced air: Solid fuel (coal, coke, and wood) ----- thousands..	(NA)	8.9	7.4	(NA)	7.9	4.4
	Oil: 150,000 Btu bonnet output or less ----- do..	(NA)	97.5	41.9	(NA)	252.1	75.5
3585A 04	150,001 to 400,000 Btu bonnet output ----- do..	(NA)	10.8	7.7	(NA)	14.7	7.5
3585A 05	More than 400,000 Btu bonnet output ----- do..	(NA)	.8	6.0	(NA)	1.4	6.2
3585A 06	Gas: 150,000 Btu bonnet output or less ----- do..	(NA)	1 132.0	301.1	(NA)	1 422.1	223.1
3585A 07	150,001 to 400,000 Btu bonnet output ----- do..	(NA)	8.9	6.8	(NA)	27.4	10.5
3585A 08	More than 400,000 Btu bonnet output ----- do..	(NA)	1.4	15.6	(NA)	(D)	(D)
3585A 09	Gravity air flow (cast-iron and steel) ----- do..	(NA)	4.8	.9	(NA)	(D)	(D)
3585A 25	Humidifiers, all types, including central systems and self- contained: As reported in the census of manufactures -----	12	(X)	23.1	(NA)	(X)	(¹⁴)
	As reported in Current Industrial Report MA-35M, Refrigeration, Air Conditioning, and Warm Air Heating Equipment -----	(NA)	(X)	27.0	(NA)	(X)	(¹⁴)
3585A 00	Warm air furnaces and humidifiers, n.s.k. -----	(NA)	(X)	13.3	(NA)	(X)	4.5
3585B — 3585B 10	Parts and accessories for air conditioning and heat transfer equipment -----	(NA)	(X)	871.9	(NA)	(X)	(¹⁴)
	Parts for heat transfer equipment, including parts for air conditioning condensing units -----	55	(X)	371.8	(NA)	(X)	(¹⁴)
3585B 20	Parts for unitary air conditioners -----	29	(X)	147.2	(NA)	(X)	(¹⁴)
3585B 30	Parts for commercial refrigeration and related equipment -----	41	(X)	101.2	(NA)	(X)	(¹⁴)
3585B 40	Parts for compressors and compressor units -----	18	(X)	72.9	(NA)	(X)	(¹⁴)
3585B 50	Parts for condensing units, excluding air conditioning condensing units -----	4	(X)	4.7	(NA)	(X)	(¹⁴)
3585B 60	Parts for dehumidifiers and room air conditioners -----	13	(X)	20.9	(NA)	(X)	(¹⁴)
3585B 70	Parts for refrigeration end air conditioning equipment, n.e.c. -----	26	(X)	57.5	(NA)	(X)	(¹⁴)
3585B 72	Parts for warm air furnaces, including duct furnaces (excluding complete humidifiers) -----	23	(X)	27.7	(NA)	(X)	(¹⁴)
3585B 00	Parts and accessories for air conditioning and heat transfer equipment, n.s.k. -----	(NA)	(X)	68.0	(NA)	(X)	(¹⁴)
35850 00	Refrigeration end heating equipment, n.s.k., typically for establishments with 10 employees or more (see note) -----	(NA)	(X)	405.4	(NA)	(X)	155.1
35850 02	Refrigeration and heating equipment, n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA)	(X)	123.1	(NA)	(X)	96.2

See footnotes at end of table.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
	MEASURING AND DISPENSING PUMPS						
3586—	Total	(NA)	(X)	590.7	(NA)	(X)	265.6
35860—	Measuring and dispensing pumps: Gasoline dispensing pumps, computing type (filling station type):						
	Single units:						
35860 13	With suction pumping unit	7	25.5	60.3	9	65.5	63.3
35860 14	Without suction pumping unit	6	*12.1	25.0	4	12.9	11.2
	Multiple units:						
35860 15	With suction pumping unit	5	44.7	135.1	8	20.2	36.1
35860 16	Without suction pumping unit	5					
35860 21	Lubricating oil outfits, including pump and tank	2	*489.2	37.0	4	(S)	4.0
35860 31	Lubricating oil pumps, including barrel pumps	5			7	**231.7	12.7
35860 41	Grease pumps	1	(D)	(18)	4	(S)	(15)
35860 51	Grease guns	6	(S)	32.1	5	(S)	21.7
35860 88	Other measuring and dispensing pumps (including noncomputing gasoline dispensing pumps)	33	(S)	¹⁶ 140.3	(15)	(X)	(15)
35860 91	Parts and attachments for measuring and dispensing pumps	20	(X)	134.3	¹⁵ 17	(X)	¹⁵ 98.5
35860 00	Measuring and dispensing pumps, n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	(X)	21.8	(NA)	(X)	12.5
35860 02	Measuring and dispensing pumps, n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	4.8	(NA)	(X)	5.6
	SERVICE INDUSTRY MACHINERY, N.E.C.						
3589—	Total	(NA)	(X)	2 550.4	(NA)	(X)	1 687.6
35891—	Commercial cooking and food warming equipment	(NA)	(X)	609.0	(NA)	(X)	386.0
	Nonelectric:						
35891 11	Commercial ranges, ovens, and broilers (except electric)	20	*90.7	95.7	10	204.9	75.0
35891 13	Deep-fat fryers	11	45.9	31.2			
35891 30	Other commercial cooking equipment (except electric), including griddles, toasters, coffee urns, pressure cookers-steam, etc.	20	**50.1	60.7	20	*52.7	47.4
35891 31	Commercial food-warming equipment (except electric), including steam tables	7	(X)	16.1	4	(X)	3.7
	Electric:						
35891 61	Commercial ranges, ovens, and broilers, electric	19	*78.0	68.5	17	**35.4	45.0
35891 63	Commercial electronic stoves and ovens	5			4	**10.3	8.6
35891 67	Deep-fat fryers	16	*113.7	27.9			
35891 70	Other commercial cooking equipment (electric), including griddles, toasters, coffee makers, coffee urns, etc.	33	*385.3	105.8	35	**272.1	114.2
35891 81	Commercial food warming equipment (electric), including hot food server units and steam tables	31	(X)	101.9	27	(X)	40.5
35891 85	Parts and accessories for commercial cooking and food warming equipment	31	(X)	68.2	22	(X)	22.6
35891 00	Commercial cooking and food warming equipment, n.s.k.	(NA)	(X)	33.0	(NA)	(X)	29.0
35892—	Service industry machines and parts	(NA)	(X)	1 568.4	(NA)	(X)	1 059.2
	Water heaters (excluding boilers):						
35892 01	Electric (more than 120 gallons)	5	*194.1	59.9	(17)	(17)	(17)
35892 02	All other (more than 120 gallons)	7			(17)	(17)	(17)
	Water softeners:						
35892 22	Industrial	19	(S)	112.6	18	(S)	50.0
	Farm, household, and commercial:						
35892 25	Manual and semi-automatic	6	(S)	7.5	6	*28.9	6.6
35892 28	Automatic	17	(S)	88.8	17	307.7	55.9
35892 35	Floor waxing and polishing machines, commercial and industrial type	14	167.7	34.4	17	138.0	54.3
35892 42	Floor sanding and scrubbing machines, commercial type	8	114.2	28.8	11	(X)	29.3
35892 61	Carpet sweepers, commercial type, except vacuum type	6	**70.9	9.6	7	(S)	18.7
	Dishwashing machines, commercial type:						
35892 73	Conveyor type	9	(S)	41.0	7	1.9	17.6
35892 75	All other	13	(S)	33.7	14	26.4	45.1
35892 81	Sewage treatment equipment	54	(X)	275.6	59	(X)	222.1
35892 82	Commercial car washing machinery and equipment	22	(S)	48.3	24	(S)	41.3
35892 83	Garbage and trash compactors, commercial and industrial	21	(S)	39.8	9	**2.3	9.8
35892 84	Sewer, pipe, and drain cleaning machinery and equipment, excluding high pressure (more than 1,000 p.s.i.) cleaning and blasting machinery and equipment	14	37.3	28.2	13	*92.4	*31.6
35892 86	High pressure (more than 1,000 p.s.i.) cleaning and blasting machinery and equipment, excluding foundry machinery and equipment	36	(S)	121.9	(17)	(NA)	(17)
35892 89	Other industrial and commercial service machines	113	(X)	460.0	¹⁷ 81	(X)	¹⁷ 304.4
35892 93	Parts and accessories for service industry machines	62	(X)	137.6	47	(X)	77.3
35892 00	Service industry machines, n.s.k.	(NA)	(X)	40.7	(NA)	(X)	95.1
35893—	Commercial and industrial vacuum cleaners, including parts and attachments	(NA)	(X)	192.9	(NA)	(X)	109.4
35893 11	Portable, including parts and attachments	36	(S)	179.7	30	*264.4	86.3
35893 98	Central system, including parts and attachments	7	11.9	7.1	10	(X)	17.3
35893 00	Commercial and industrial vacuum cleaners, n.s.k.	(NA)	(X)	6.1	(NA)	(X)	5.8
35890 00	Service industry machinery, n.e.c., n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	(X)	119.9	(NA)	(X)	96.9
35890 02	Service industry machinery, n.e.c., n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	60.2	(NA)	(X)	36.0

See footnotes at end of table.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	Year	Companies reporting \$100,000 or more	Product shipments ¹		Shipments for replacement including shipments to U.S. motor vehicle manufactures for resale		Shipments to U.S. motor vehicle manufacturers or their suppliers for use in original equipment (million dollars)	Shipments for export, including transfers to other divisions for export (million dollars)
				Quantity ²	Value (million dollars)	Quantity	Value (million dollars)		
	CARBURETORS, PISTONS, RINGS, AND VALVES								
3592- --	Total -----	1982	(NA)	(X)	1 908.1	(X)	(X)	(X)	(X)
		1977	(NA)	(X)	1 298.5	(X)	(X)	(X)	(X)
35921 --	Carburetors, new and rebuilt -----	1982	(NA)	(X)	1 028.7	(X)	(X)	(X)	(X)
		1977	(NA)	(X)	642.0	(X)	(X)	(X)	(X)
35921 11	Carburetors (new), all types: For motor vehicles (passenger cars, trucks, and buses) ----- millions..	1982	10	14.5	893.8	1.9	72.4	745.3	76.1
		1977	8	15.1	554.3	2.0	54.3	452.7	47.3
35921 13	All other carburetors ----- do..	1982	8	2.8	41.7	(X)	(X)	(X)	(X)
		1977	7	*3.7	44.2	(X)	(X)	(X)	(X)
35921 71	Carburetors, rebuilt, all types ----- do..	1982	10	1.3	34.0	(X)	(X)	(X)	(X)
		1977	11	2.2	42.2	(X)	(X)	(X)	(X)
35921 72	Parts for carburetors (excluding gaskets and screw machine products) -----	1982	25	(NA)	57.5	(X)	(X)	(X)	(X)
		1977	(NA)	(NA)	(19)	(X)	(X)	(X)	(X)
35921 00	Carburetors, n.s.k. -----	1982	(NA)	(X)	1.7	(X)	(X)	(X)	(X)
		1977	(NA)	(X)	181.3	(X)	(X)	(X)	(X)
35922 --	Pistons, piston rings, and piston pins (engine) -----	1982	(NA)	(X)	494.2	(X)	(X)	(X)	(X)
		1977	(NA)	(X)	372.2	(X)	(X)	(X)	(X)
35922 21	Pistons, all types (machined), excluding rough castings: For motor vehicles (passenger cars, trucks, and buses) ----- millions..	1982	14	12.6	107.7	7.1	52.5	6.2	48.5
		1977	15	17.9	99.4	9.7	54.5	31.9	13.0
35922 23	All other pistons ----- do..	1982	13	10.8	115.4	(X)	(X)	(X)	(X)
		1977	9	7.3	46.4	(X)	(X)	(X)	(X)
	Piston rings, all types: Oil type:								
35922 51	For motor vehicles (passenger cars, trucks, and buses) ----- do..	1982	7	191.2	72.2	76.6	22.8	43.2	6.2
		1977	9	222.6	49.7	32.9	12.1	32.2	5.4
35922 53	All other oil type piston rings ----- do..	1982	6	22.7	10.9	(X)	(X)	(X)	(X)
		1977	7	16.2	7.0	(X)	(X)	(X)	(X)
	Compression type:								
35922 55	For motor vehicles (passenger cars, trucks, and buses) ----- do..	1982	7	361.1	132.8	(D)	(D)	(D)	6.5
		1977	10	444.3	137.6	108.2	38.5	87.4	11.7
35922 57	All other compression type piston rings ----- do..	1982	7	1.9	25.2	(X)	(X)	(X)	(X)
		1977	16	13.6	30.9	(X)	(X)	(X)	(X)
35922 59	Piston pins -----	1982	3	(X)	(19)	(X)	(X)	(X)	(X)
		1977	(NA)	(NA)	(19)	(X)	(X)	(X)	(X)
35922 00	Pistons, piston rings, and piston pins, n.s.k. -----	1982	(NA)	(X)	1830.0	(X)	(X)	(X)	(X)
		1977	(NA)	(X)	181.2	(X)	(X)	(X)	(X)
35923 --	Valves (engine intake and exhaust) -----	1982	(NA)	(X)	325.1	(X)	(X)	(X)	(X)
		1977	(NA)	(X)	257.5	(X)	(X)	(X)	(X)
35923 61	Valves (engine intake and exhaust): For motor vehicle engines (passenger cars, trucks, and buses) ----- millions..	1982	6	(D)	(20)	(D)	(D)	(D)	(D)
		1977	9	245.2	210.6	21.9	19.6	177.4	13.6
35923 63	For other engines ----- do..	1982	13	(S)	20322.2	(X)	(X)	(X)	(X)
		1977	25	(S)	46.9	(X)	(X)	(X)	(X)
35923 00	Valves, n.s.k. -----	1982	(NA)	(X)	2.9	(X)	(X)	(X)	(X)
		1977	(NA)	(X)	-	(X)	(X)	(X)	(X)
35920 00	Carburetors, pistons, rings, and valves, n.s.k., typically for establishments with 10 employees or more (see note) -----	1982	(NA)	(X)	35.9	(X)	(X)	(X)	(X)
		1977	(NA)	(X)	13.1	(X)	(X)	(X)	(X)
35920 02	Carburetors, pistons, rings, and valves, n.s.k., typically for establishments with less than 10 employees (see note) -----	1982	(NA)	(X)	24.2	(X)	(X)	(X)	(X)
		1977	(NA)	(X)	13.8	(X)	(X)	(X)	(X)
1982 product code	Product	1982				1977			
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Value (million dollars)	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)		
	MACHINERY, EXCEPT ELECTRICAL, N.E.C.								
3599- --	Total -----	(NA)	(X)		11 697.8	(NA)	(X)		6 441.0
35994 --	Miscellaneous machinery products, including flexible metal hose and tubing, metal bellows, etc. -----	(NA)	(X)		1 582.4	(NA)	(X)		676.9
	Flexible metal hose and tubing:								
35994 11	Copper and copper-base alloy -----	25	(X)		26.2	16	(X)		19.5
35994 13	Aluminum and aluminum-base alloy -----	48	(X)		19.8	11	(X)		8.2
35994 15	Stainless steel -----	76	(X)		79.2	28	(X)		62.9
35994 16	Other -----	56	(X)		59.7	25	(X)		51.0
35994 25	Metal bellows -----	24	(X)		88.6	21	(X)		59.2
35994 31	Carnival and amusement park equipment (feris wheels, merry-go-rounds, etc.), excluding coin-operated amusement machines -----								
		21	(X)		26.0	11	(X)		27.9
35994 98	Other miscellaneous machinery products -----	1 475	(X)		1 216.0	226	(X)		348.5

See footnotes at end of table.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
	MACHINERY, EXCEPT ELECTRICAL, N.E.C.—Con.						
35994 —	Miscellaneous machinery products, including flexible metal						
35994 00	hose and tubing, metal bellows, etc. —Con. Miscellaneous machinery products, n.s.k. -----	(NA)	(X)	66.9	(NA)	(X)	99.7
35995 —	Receipts for machine shop job work:						
35995 00	Machine shop job work -----	5 334	(X)	5 594.5	5 191	(X)	3 338.1
35996 —	Hydraulic and pneumatic cylinders (linear motors), except						
35996 00	aerospace: Hydraulic and pneumatic cylinders (linear motors), except aerospace: As reported in the census of manufactures ----- As reported in the Current Industrial Report MA-35N, Fluid Power Products (Including Aerospace) ----- Hydraulic and pneumatic cylinders: Hydraulic cylinders: Tie-rod types ----- thousands..	202	(X)	552.9	(NA)	(X)	²¹ 386.6
	Weld/fused ----- do..	(NA)	(X)	521.6	(²²)	(²²)	(²²)
35996 11	Telescoping ----- do..	(NA)					²¹ 92.1
35996 12	Threaded ----- do..	(NA)					²¹ 115.1
35996 13	Mill type ----- do..	(NA)					²¹ 30.0
35996 14	Other, including combination ----- do..	(NA)					²¹ 12.4
35996 15	Pneumatic cylinders: Tie-rod types ----- do..	(NA)					²¹ 9.4
35996 16	Other ----- do..	(NA)					²¹ 34.8
35996 21	Tie-rod types ----- do..	(NA)					²¹ 49.4
35996 22	Other ----- do..	(NA)					²¹ 28.9
35996 0A	Hydraulic and pneumatic cylinders, except aerospace, n.s.k. -----	(NA)	(X)	-	(NA)	(X)	²¹ 14.5
35997 —	Hydraulic and pneumatic rotary actuators, accumulators,						
35997 00	cushions, and nonvehicular shock absorbers, except aerospace: Hydraulic and pneumatic rotary actuators, accumulators, cushions, and nonvehicular shock absorbers: As reported in the census of manufactures ----- As reported in the Current Industrial Report MA-35N, Fluid Power Products (Including Aerospace) ----- Hydraulic and pneumatic rotary actuators, limited rotation: Hydraulic rotary actuators ----- thousands..	49	(X)	87.9	(NA)	(X)	²¹ 69.4
	Pneumatic rotary actuators ----- do..	(NA)	(X)	87.8	(²²)	(²²)	(²²)
35997 25	Accumulators (fluid power), including hydraulic,	(NA)					
35997 26	hydropneumatic, pneumatic, etc. ----- do..	(NA)					
35997 31	Cushions (fluid power), nonlinear, including hydraulic,	(NA)					
35997 33	hydropneumatic, pneumatic, etc. ----- do..	(NA)					
35997 37	Shock absorbers, not for vehicle suspension, hydraulic and pneumatic ----- do..	(NA)					
35998 —	Aerospace type hydraulic and pneumatic cylinders and						
35998 00	related items: Aerospace type hydraulic and pneumatic cylinders and related items: As reported in the census of manufactures ----- As reported in the Current Industrial Report MA-35N, Fluid Power Products (Including Aerospace) ----- Hydraulic servo-actuator assemblies (linear and rotary): Mechanical input ----- thousands..	84	(X)	310.1	(²¹)	(²¹)	(²¹)
35998 51	Electrical input ----- do..	(NA)	(X)	291.1	(²²)	(²²)	(²²)
35998 52	Combination input ----- do..	(NA)					
35998 55	Hydraulic utility actuators: Linear actuators (cylinders) ----- do..	(NA)					
35998 61	Rotary actuators (limited rotation) ----- do..	(NA)					
35998 62	Shock absorbers, snubbers, and cushions, all types	(NA)					
35998 71	excluding oleo strut assemblies ----- thousands..	(NA)					
35998 72	Pneumatic actuators and actuator assemblies (linear and rotary) ----- do..	(NA)					
35998 73	Accumulators and other hydraulic, pneumatic, or combination devices for fluid energy absorption and/ or storage ----- do..	(NA)					
35998 74	Hydraulic fluid reservoirs and reservoir assemblies, including "bootstrap" reservoirs, spring pressurized reservoirs, and similar reservoirs; and reservoirs with integral valves and/or filters ----- do..	(NA)					
35998 79	Other aerospace type fluid power cylinders, actuators, accumulators, cushions, and related items, n.e.c. ----- do..	(NA)					
35998 0A	Aerospace hydraulic and pneumatic cylinders, n.s.k. -----	(NA)	(X)	-	(²¹)	(²¹)	(²¹)
35999 —	Parts for hydraulic and pneumatic cylinders, actuators,						
35999 00	accumulators, cushions, and nonvehicular shock absorbers: Parts for hydraulic and pneumatic cylinders, actuators, accumulators, cushions, and nonvehicular shock absorbers: As reported in the census of manufactures ----- As reported in the Current Industrial Report MA-35N, Fluid Power Products (Including Aerospace) -----	78	(X)	144.9	(²¹)	(²¹)	(²¹)
35999 98	Parts for hydraulic and pneumatic cylinders, actuators, accumulators, cushions, and nonvehicular shock absorbers, sold separately, except aerospace -----	(NA)	(X)	116.1	(²²)	(²²)	(²²)
35999 96	Parts for aerospace type fluid power (hydraulic and pneumatic) cylinders, actuators, accumulators, cushions, and related items sold separately -----	(NA)	(X)	86.3	(²¹)	(²¹)	(²¹)
		(NA)	(X)	29.8	(²¹)	(²¹)	(²¹)

See footnotes at end of table.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

(Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text)

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
	MACHINERY, EXCEPT ELECTRICAL, N.E.C.—Con.						
35990 00	Machinery, except electrical, n.e.c., n.s.k., typically for establishments with 10 employees or more (see note) -----	(NA)	(X)	2 088.0	(NA)	(X)	1 124.2
35990 02	Machinery, except electrical, n.e.c., n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA)	(X)	1 337.1	(NA)	(X)	845.7

Note: In 1982 Census of Manufactures, data for establishments of small single-unit companies with up to 20 employees were estimated from administrative-record data rather than data actually collected from respondents. Employment cutoff used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1982 and 1977 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

¹Data reported by all producers, not just those with shipments of \$100,000 or more.

²For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

³Some vending machines designed and sold to handle bottled (canned) soft drinks are also adaptable to canned (bottled) beverages through the use of a conversion kit. For this reason, number of factory-shipped dispensers for canned (bottled) beverages may be somewhat less than number of vending machines put into service.

⁴Includes vending machines for beverages (such as milk in quart and half-gallon containers) and for packaged dry ingredients for mixing into beverages, etc.

⁵For 1977, product codes 35811 24, 35811 25, 35811 27, and 35811 29 were combined to avoid disclosing data for individual companies.

⁶For 1982, product codes 35811 25 and 35811 29 are combined to avoid disclosing data for individual companies.

⁷Includes vending machines for bulk popcorn.

⁸For 1977, product codes 35811 32, 35811 33, and 35811 49 were combined to avoid disclosing data for individual companies.

⁹Includes vending machines for such products as aspirin, cigars, combs, cosmetics, pencils, paper, and newspapers. Included are multipurpose machines for nonfood and nonbeverage items.

¹⁰For 1977, data for product codes 35851 81, 35851 83, and 35851 84 were combined to avoid disclosing data for individual companies.

¹¹For 1982, product codes 35851 53 and 35851 55 are combined to avoid disclosing data for individual companies.

¹²For 1982, product codes 35854 69 and 35854 71 are combined to avoid disclosing data for individual companies.

¹³For 1982, product codes 35855 29 and 35855 30 are combined to avoid disclosing data for individual companies.

¹⁴Separate data are not available for these categories for 1977. Total identifiable parts value for 1977, including humidifiers, is shown with product class 3585B.

¹⁵For 1977, data for product codes 35860 41, 35860 88, and 35860 91 were combined.

¹⁶For 1982, data for product codes 35860 41 and 35860 88 are combined.

¹⁷For 1977, product codes 35892 01, 35892 02, and 35892 86 were combined with product code 35892 89 to avoid disclosing data for individual companies.

¹⁸For 1977, product code 35921 72 was included with product code 35921 00.

¹⁹For 1982 and 1977, product code 35922 59 is combined with product code 35922 00 to avoid disclosing data for individual companies.

²⁰For 1982, product code 35923 61 is combined with product code 35923 63 to avoid disclosing data for individual companies.

²¹For 1977, aerospace and parts categories were not reported separately. Data shown include both aerospace and nonaerospace, including parts.

²²Current Industrial Report MA-35N series originated in 1981. Data shown for 1977 were collected separately in the census of manufactures.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1982 and 1977

(Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1982. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes)

Product class and geographic area	1982 value of product shipments	1977 value of product shipments	Product class and geographic area	1982 value of product shipments	1977 value of product shipments
35811, AUTOMATIC MERCHANDISING MACHINES			35851, HEAT TRANSFER EQUIPMENT—Con.		
United States -----	334.1	294.9	Minnesota -----	113.6	178.6
Illinois -----	9.5	15.5	New Jersey -----	31.7	(NA)
New York -----	2.4	(NA)	Oklahoma -----	42.2	23.7
			Pennsylvania -----	162.2	82.8
			Tennessee -----	71.4	36.8
35812, PARTS FOR AUTOMATIC MERCHANDISING MACHINES			Texas -----	220.7	179.1
United States -----	96.2	84.3	Virginia -----	61.2	25.7
Illinois -----	4.2	10.0	Washington -----	11.5	(NA)
			Wisconsin -----	209.2	110.3
35851, HEAT TRANSFER EQUIPMENT			35852, UNITARY AIR CONDITIONERS		
United States -----	2 908.0	2 251.2	United States -----	1 972.1	1 673.0
California -----	53.6	59.8	Arkansas -----	107.1	(NA)
Colorado -----	12.7	(NA)	Illinois -----	42.9	77.8
Florida -----	2.3	(NA)	Indiana -----	106.6	(NA)
Illinois -----	165.6	106.4	Minnesota -----	38.3	(NA)
Indiana -----	6.0	13.9	Missouri -----	15.7	(NA)
Kentucky -----	168.7	131.2	New Jersey -----	75.0	62.5
Maine -----	6.7	(NA)	New York -----	70.5	(NA)
Maryland -----	33.0	(NA)	Ohio -----	192.2	162.9
Massachusetts -----	16.8	11.6	Tennessee -----	564.8	413.8
Michigan -----	61.7	49.2	Texas -----	261.8	279.1
			Virginia -----	15.1	(NA)

See footnotes at end of table.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1982 and 1977—Con.

(Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1982. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.)

Product class and geographic area	1982 value of product shipments	1977 value of product shipments	Product class and geographic area	1982 value of product shipments	1977 value of product shipments
35853, COMMERCIAL REFRIGERATORS			35891, COMMERCIAL COOKING AND FOOD WARMING EQUIPMENT		
United States	1 070.8	759.4	United States	609.0	388.0
Alabama	21.5	14.8	California	93.4	54.8
California	84.6	27.6	Georgia	6.8	(NA)
Florida	24.6	(NA)	Illinois	120.2	83.1
Illinois	46.8	69.6	Missouri	23.4	17.6
Indiana	9.9	(NA)	New Jersey	13.1	8.9
Massachusetts	24.8	8.4	Ohio	52.3	19.5
Michigan	42.0	50.8	Texas	4.5	(NA)
Mississippi	28.3	15.7	Wisconsin	25.8	13.1
New York	79.5	35.1			
North Carolina	29.8	(NA)			
Pennsylvania	114.9	71.2	35892, SERVICE INDUSTRY MACHINES AND PARTS		
Texas	43.5	36.8	United States	1 568.4	1 059.2
Wisconsin	92.5	85.8	Alabama	27.3	(NA)
35854, COMPRESSORS AND COMPRESSOR UNITS			Arizona	14.2	2.8
United States	1 734.7	1 580.3	Arkansas	21.2	13.1
Indiana	121.1	18.5	California	188.3	110.0
Ohio	731.0	916.1	Colorado	25.9	14.4
Pennsylvania	26.1	15.2	Connecticut	13.7	6.8
Texas	30.6	(NA)	Florida	37.2	11.2
Wisconsin	29.4	30.9	Illinois	262.9	163.5
35855, REFRIGERATION CONDENSING UNITS			Indiana	16.0	18.0
United States	196.9	175.6	Iowa	28.7	16.7
California	9.7	5.1	Kansas	13.1	(NA)
Texas	6.0	11.6	Kentucky	29.2	(NA)
35859, REFRIGERATION AND AIR CONDITIONING EQUIPMENT, N.E.C.			Massachusetts	21.1	22.0
United States	428.9	(NA)	Michigan	66.3	59.8
California	38.0	(NA)	Minnesota	115.5	119.2
Illinois	31.8	(NA)	Missouri	6.9	6.7
Minnesota	10.0	(NA)	New Jersey	123.6	65.4
New Jersey	9.5	(NA)	New York	35.8	22.6
New York	4.9	(NA)	North Carolina	22.8	10.1
Ohio	6.6	(NA)	Ohio	100.7	82.3
Pennsylvania	16.4	(NA)	Oklahoma	3.6	(NA)
Texas	46.3	(NA)	Pennsylvania	110.8	64.4
3585A, WARM AIR FURNACES AND HUMIDIFIERS			South Dakota	7.4	(NA)
United States	426.3	(NA)	Tennessee	12.2	5.2
Illinois	11.4	(NA)	Texas	47.5	54.0
Indiana	46.1	(NA)	Virginia	12.0	7.0
Massachusetts	3.3	(NA)	Wisconsin	132.0	80.5
Michigan	13.5	(NA)	35893, COMMERCIAL AND INDUSTRIAL VACUUM CLEANERS		
Minnesota	9.4	(NA)	United States	192.9	109.4
Ohio	51.7	(NA)	California	2.2	(NA)
Pennsylvania	6.8	(NA)	Illinois	18.4	11.1
Tennessee	46.7	(NA)	New Jersey	2.3	2.4
Wisconsin	11.1	(NA)	New York	10.4	(NA)
3585B, PARTS FOR REFRIGERATION AND HEATING EQUIPMENT			Ohio	19.0	7.1
United States	871.9	(NA)	35921, CARBURETORS, NEW AND REBUILT		
Alabama	16.3	(NA)	United States	1 028.7	842.0
Arkansas	16.6	(NA)	California	14.7	12.7
California	9.4	(NA)	Texas	12.8	(NA)
Connecticut	8.4	(NA)	35922, PISTONS, PISTON RINGS, AND PISTON PINS (ENGINE)		
Georgia	24.5	(NA)	United States	494.2	372.2
Illinois	27.7	(NA)	California	7.3	16.9
Maryland	22.5	(NA)	Michigan	106.1	(NA)
Massachusetts	6.7	(NA)	Ohio	30.9	(NA)
Michigan	43.5	(NA)	Texas	8.9	4.4
Missouri	35.7	(NA)	Wisconsin	48.2	28.8
New Jersey	22.2	(NA)			
New York	76.9	(NA)			
North Carolina	4.2	(NA)			
Ohio	49.5	(NA)			
Pennsylvania	60.1	(NA)			
Tennessee	45.6	(NA)			
Texas	128.7	(NA)			
Virginia	10.5	(NA)			
Wisconsin	60.5	(NA)			

See footnotes at end of table.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1982 and 1977—Con.

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1982. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Product class and geographic area	1982 value of product shipments	1977 value of product shipments	Product class and geographic area	1982 value of product shipments	1977 value of product shipments
35994, MISCELLANEOUS MACHINERY PRODUCTS			35995, RECEIPTS FOR MACHINE SHOP JOB WORK—Con.		
United States	1 582.4	676.9	Nebraska	7.3	5.7
Alabama	28.4	(NA)	Nevada	3.3	(NA)
Arizona	6.4	(NA)	New Hampshire	18.9	13.1
California	247.0	73.1	New Jersey	177.1	132.6
Colorado	12.1	2.7	New Mexico	18.0	13.3
Connecticut	68.6	36.7	New York	228.0	148.5
Delaware	2.4	(NA)	North Carolina	76.6	35.1
Florida	27.8	2.0	North Dakota	5.3	2.3
Georgia	15.6	4.6	Ohio	397.8	289.5
Idaho	4.6	(NA)	Oklahoma	102.4	28.0
Illinois	144.0	80.8	Oregon	56.3	45.0
Indiana	48.3	8.6	Pennsylvania	401.5	237.5
Iowa	5.6	(NA)	Rhode Island	12.4	9.5
Kansas	13.2	12.1	South Carolina	25.1	13.3
Kentucky	20.4	(NA)	Tennessee	52.4	30.6
Louisiana	11.8	15.1	Texas	492.1	229.4
Maine	3.0	(NA)	Utah	19.1	20.8
Maryland	11.7	6.3	Vermont	11.9	3.6
Massachusetts	74.4	25.1	Virginia	83.4	29.0
Michigan	104.1	49.5	Washington	82.8	63.9
Minnesota	42.3	7.8	West Virginia	55.5	21.6
Mississippi	3.1	(NA)	Wisconsin	151.9	106.5
Missouri	14.3	8.9	Wyoming	12.0	4.5
Nebraska	2.4	(NA)			
New Hampshire	6.5	(NA)	35996, HYDRAULIC AND PNEUMATIC CYLINDERS, EXCEPT AEROSPACE		
New Jersey	46.4	18.0	United States	552.9	(NA)
New Mexico	5.9	(NA)	Alabama	11.9	(NA)
New York	73.8	53.5	California	30.3	(NA)
North Carolina	17.1	4.5	Illinois	100.4	(NA)
Ohio	81.7	59.5	Indiana	14.4	(NA)
Oklahoma	24.0	4.6	Iowa	35.0	(NA)
Oregon	7.6	(NA)	Kansas	39.2	(NA)
Pennsylvania	95.9	62.7	Michigan	52.9	(NA)
Rhode Island	15.6	(NA)	Minnesota	11.2	(NA)
South Carolina	9.6	(NA)	Nebraska	12.5	(NA)
Tennessee	35.3	21.6	New Jersey	10.7	(NA)
Texas	151.1	41.3	New York	9.4	(NA)
Utah	2.9	(NA)	Ohio	78.3	(NA)
Virginia	16.9	(NA)	Oregon	14.0	(NA)
Washington	10.4	(NA)	Pennsylvania	24.3	(NA)
Wisconsin	58.0	16.8	Texas	19.8	(NA)
			Washington	7.8	(NA)
			Wisconsin	28.2	(NA)
35995, RECEIPTS FOR MACHINE SHOP JOB WORK			35997, HYDRAULIC AND PNEUMATIC ROTARY ACTUATORS, ACCUMULATORS, ETC.		
United States	5 594.5	3 338.1	United States	87.9	(NA)
Alabama	91.9	38.5	California	21.5	(NA)
Alaska	3.7	(NA)	Michigan	9.0	(NA)
Arizona	78.2	42.8	New York	9.4	(NA)
Arkansas	15.2	6.5	Ohio	9.7	(NA)
California	804.7	477.3			
Colorado	60.0	27.3	35998, AEROSPACE TYPE HYDRAULIC AND PNEUMATIC CYLINDERS AND RELATED ITEM		
Connecticut	185.4	99.7	United States	310.1	(NA)
Delaware	5.1	2.8	Arizona	2.2	(NA)
Florida	55.9	41.3	California	193.0	(NA)
Georgia	62.3	22.1	Connecticut	3.7	(NA)
Hawaii	2.4	2.2	Illinois	2.2	(NA)
Illinois	337.6	251.6	Michigan	2.9	(NA)
Indiana	114.9	82.6	New York	82.7	(NA)
Iowa	20.5	21.8	Ohio	2.9	(NA)
Kansas	51.7	35.9			
Kentucky	30.6	23.9	35999, PARTS FOR HYDRAULIC AND PNEUMATIC CYLINDERS, ETC.		
Louisiana	145.4	58.5	United States	144.9	(NA)
Maine	13.5	7.2	California	39.0	(NA)
Maryland	76.3	43.4	Illinois	20.2	(NA)
Massachusetts	239.0	110.6	Indiana	3.2	(NA)
Michigan	353.7	259.3	Iowa	3.1	(NA)
Minnesota	224.9	124.9	Michigan	11.6	(NA)
Mississippi	18.4	10.3	Ohio	11.8	(NA)
Missouri	104.0	52.8	Wisconsin	5.6	(NA)
Montana	3.2	(NA)			

Note: For 1977, the following value ranges (in million dollars) substitute for actual figures withheld to avoid disclosing data for individual companies: AA—less than \$2.0 but not 0; BB—\$2.0 to \$4.9; CC—\$5.0 to \$9.9; EE—\$10.0 to \$19.9; FF—\$20.0 to \$49.9; GG—\$50.0 or more.

Table 6c. Product Classes—Value Shipped by All Producers: 1982 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

1982 product code	Product class	1982	1981 ¹	1980 ¹	1979 ¹	1978 ¹	1977	1972	1967
3581-	Automatic merchandising machines	445.7	515.2	479.7	487.4	468.7	396.2	306.3	261.3
35811	Automatic merchandising machines	334.1	372.3	343.3	366.7	347.6	294.9	231.5	198.3
35812	Parts for automatic merchandising machines	96.2	128.8	119.8	108.8	104.9	84.3	61.1	45.5
35810	Automatic merchandise machines, n.s.k.	15.5	14.1	16.6	11.9	16.2	17.0	13.7	17.4
35820	Commercial laundry equipment	338.7	325.4	333.4	303.7	281.8	233.6	185.3	(NA)
3585-	Refrigeration and heating equipment	11 035.6	11 513.8	10 252.9	10 939.1	10 158.4	8 501.7	6 232.1	3 695.4
35851	Heat transfer equipment	2 908.0	3 040.9	2 771.5	3 054.9	2 689.6	2 251.2	1 680.5	903.2
35852	Unitary air conditioners	1 972.1	2 296.1	2 035.3	2 188.9	2 047.1	1 673.0	1 070.6	530.1
35853	Commercial refrigerators	1 070.8	1 105.9	1 041.9	977.9	857.0	759.4	482.3	341.5
35854	Compressors and compressor units	1 734.7	1 973.8	1 771.8	1 965.9	1 825.2	1 580.3	1 065.4	494.5
35855	Refrigeration condensing units	196.9	195.9	205.3	197.1	189.5	175.6	146.8	73.3
35856	Room air conditioners and dehumidifiers	897.5	1 064.8	912.8	957.9	925.6	720.4	679.6	553.3
35859	Refrigeration and air conditioning equipment, n.e.c.	428.9							
3585A	Warm air furnaces and humidifiers	426.3	1 688.9	1 409.2	1 470.9	1 329.7	1 090.6	954.5	711.3
3585B	Parts for refrigeration and heating equipment	871.9							
35850	Refrigeration and heating equipment, n.s.k.	528.5	147.5	104.9	125.7	294.7	251.3	152.4	88.2
35860	Measuring and dispensing pumps	590.7	546.3	539.6	440.7	316.6	265.6	183.4	139.3
3589-	Service industry machinery, n.e.c.	2 550.4	2 274.3	2 247.0	2 001.5	1 965.6	1 687.6	864.4	539.8
35891	Commercial cooking and food warming equipment	609.0	600.5	550.5	505.1	462.4	386.0	217.0	158.2
35892	Service industry machines and parts	1 568.4	1 332.4	1 423.7	1 281.5	1 145.4	1 059.2	496.5	305.3
35893	Commercial and industrial vacuum cleaners	192.9	180.2	156.8	122.8	148.1	109.4	62.7	26.0
35890	Service industry machinery, n.e.c., n.s.k.	180.1	161.2	116.0	92.1	209.7	132.9	88.2	50.3
3592-	Carburetors, pistons, rings, and valves	1 908.1	2 028.7	1 668.0	1 775.3	1 506.6	1 298.5	793.9	512.7
35921	Carburetors, new and rebuilt	1 028.7	1 196.3	968.7	959.5	778.7	642.0	355.3	189.9
35922	Pistons, piston rings, and piston pins (engine)	494.2	523.5	434.1	498.7	411.0	372.2	229.3	199.2
35923	Valves (engine intake and exhaust)	325.1	271.9	229.0	285.9	289.0	257.5	196.6	107.8
35920	Carburetors, pistons, rings, and valves, n.s.k.	60.1	37.1	36.2	31.2	27.9	26.9	12.7	15.8
3599-	Machinery, except electrical, n.e.c.	11 697.8	12 887.4	11 588.4	9 859.0	7 839.7	6 441.0	3 363.3	2 753.0
35994	Miscellaneous machinery products	1 582.4	1 048.7	848.0	840.8	736.4	676.9	442.5	702.3
35995	Receipts for machine shop job work	5 594.5	8 010.4	7 448.3	6 479.8	4 395.8	3 338.1	1 425.8	1 080.0
35996	Hydraulic and pneumatic cylinders, except aerospace	552.9							
35997	Hydraulic and pneumatic rotary actuators, accumulators, etc.	87.9							
35998	Aerospace type hydraulic and pneumatic cylinders and related items	310.1	1 051.8	796.9	717.4	546.4	456.1	189.2	127.5
35999	Parts for hydraulic and pneumatic cylinders, etc.	144.9							
35990	Machinery, except electrical, n.e.c., n.s.k.	3 425.1	2 776.6	2 495.2	1 821.0	2 161.1	1 969.9	1 305.8	843.2

¹Figures are estimates derived from a representative sample of manufacturing establishments canvassed in annual survey of manufactures and, therefore, may differ from results that would be obtained from a complete canvass of all manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures volumes for this period.

Table 7. Materials Consumed by Kind: 1982 and 1977

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3581, AUTOMATIC MERCHANDISING MACHINES				
	Materials, parts, containers, and supplies	(X)	250.1	(X)	197.7
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes	1,000 s tons..			
331012	Sheet and strip	do..			
331013	Plates	do..			
331015	Structural shapes	do..			
331017	Wire and wire products	do..			
331019	All other carbon steel mill shapes and forms	do..			
331020	Alloy steel, except stainless	do..			
	Stainless steel:				
331033	Sheet and strip	do..			
331050	All other stainless steel mill shapes and forms	do..			
335792	Insulated copper wire and cable, except magnet wire (quantity in copper content)	mil lb..			
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil	do..			
335006	All other aluminum mill shapes and forms (wire, rod, bar, powder, welded tubing, extruded shapes, etc.)	do..			
332011	Castings (rough and semifinished):				
	Iron (gray and malleable):				
	Purchased	1,000 s tons..			
	Produced and consumed	do..			
332045	Steel:				
	Purchased	do..			
	Produced and consumed	do..			
336100	Aluminum and aluminum-base alloy:				
	Purchased	mil lb..			
	Produced and consumed	do..			
336200	Copper and copper-base alloy:				
	Purchased	do..			
	Produced and consumed	do..			
336902	Other nonferrous:				
	Purchased	do..			
	Produced and consumed	do..			
345001	Bolts, nuts, screws, rivets, and screw machine products	do..			
346901	Metal stampings	do..			
349402	Fabricated metal pipe, valves, and pipe fittings, except plumbers' fittings	do..			

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1982 and 1977—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3581, AUTOMATIC MERCHANDISING MACHINES—Con.				
339915	Metal powders -----mil lb--	-	-	(S)	⁶ 2.6
356104	Pumps, complete assemblies (except fluid power) ----- thousands--	(S)	(Z)	(X)	(7)
356810	Plain bearings and bushings -----	(X)	(Z)	(X)	.9
356601	Speed changers, drives, and gears -----	(X)	(Z)	(X)	
358501	Compressors, compressor units, condensing units, fin coils, and other heat transfer equipment -----	(X)	13.4	(X)	7.1
360101	Electrical transmission, distribution, and control equipment ----- Electric motors and generators:	(X)	.8	(X)	10.8
	Fractional horsepower electric motors (less than 1 hp):				
362110	Timing motors, synchronous and subsynchronous:				
	Purchased ----- thousands--	(S)	.8	(S)	2.1
	Produced and consumed ----- do--	-	(X)	(S)	(X)
362115	Other fractional horsepower electric motors, excluding timing motors:				
	Purchased ----- do--	*724.1	11.0	(S)	10.4
	Produced and consumed ----- do--	(S)	(X)	(S)	(X)
362120	Integral horsepower motors and generators (1 hp or more):				
	Purchased ----- do--	(D)	(⁶)	-	-
	Produced and consumed ----- do--	-	(X)	(S)	(X)
364300	Current-carrying wiring devices -----	(X)	2.9	(X)	4.9
304101	Rubber end plastics hose and belting -----	(X)	1.8	(X)	(7)
307903	Plastics products consumed in the form of sheets, rods, tubes, and other shapes -----	(X)	7.3	(⁶)	(⁶)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes -----mil lb--	(D)	(⁶)	(S)	⁶ 5.4
244021	Wooden boxes, skids, pallets, and containers (including combination of wood and paperboard) -----	(X)	.9	(X)	(7)
260091	Paper and paperboard containers (including shipping sacks and other paper packing supplies) -----	(X)	2.6	(X)	(7)
970099	All other materials and components, parts, containers, and supplies -----	(X)	⁶ 99.2	(X)	⁷ 51.6
971000	Materials, parts, containers, and supplies, n.s.k. ² -----	(X)	49.1	(X)	46.7
	INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT				
	Materials, parts, containers, and supplies -----	(X)	132.4	(X)	96.1
	Mill shapes end forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes ----- 1,000 s tons--	(S)	1.2	(S)	.7
331012	Sheet and strip ----- do--	(S)	5.9	**9.7	3.7
331013	Plates ----- do--	**3.5	1.4	(S)	.9
331015	Structural shapes ----- do--	**9	.4	(S)	.4
331017	Wire end wire products ----- do--	(Z)	.1	(D)	(¹⁰)
331019	All other carbon steel mill shapes and forms ----- do--	(S)	2.9	(S)	¹⁰ 1.9
331020	Alloy steel, except stainless ----- do--	(D)	(¹¹)	(D)	(¹¹)
	Stainless steel:				
331033	Sheet end strip ----- do--	(S)	2.1	1.5	2.8
331050	All other stainless steel mill shapes and forms ----- do--	(S)	¹¹ 4.7	(S)	¹¹ 1.6
335792	Insulated copper wire and cable, except magnet wire (quantity in copper content) -----mil lb--	(S)	.5	(X)	(7)
335301	Aluminum end aluminum-base alloy: -----				
335006	Sheet, plate, end foil ----- do--	(S)	.2	(S)	.2
	All other aluminum mill shapes end forms (wire, rod, bar, powder, welded tubing, extruded shapes, etc.) ----- do--	(S)	1.0	.6	.1
	Castings (rough and semifinished):				
332011	Iron (grey end malleable): ----- 1,000 s tons--	(S)	3.2	(S)	2.2
	Purchased ----- do--	-	(X)	(S)	(X)
332045	Steel:				
	Purchased ----- do--	(D)	(¹²)	(X)	(7)
	Produced and consumed ----- do--	-	(X)	(X)	(X)
338100	Aluminum and aluminum-base alloy: ----- mil lb--	(S)	.6	(X)	(¹³)
	Purchased ----- do--	-	(X)	(S)	(X)
336200	Copper end copper-base alloy: ----- do--	(D)	(¹²)	(S)	¹³ 1.0
	Purchased ----- do--	-	(X)	(S)	(X)
338902	Other nonferrous: ----- do--	(S)	¹² 2.0	(X)	(7)
	Purchased ----- do--	-	(X)	(X)	(X)
345001	Bolts, nuts, screws, rivets, and screw machine products -----	(X)	1.5	(X)	.5
346901	Metal stampings -----	(X)	1.1	(X)	1.3
349402	Fabricated metal pipe, valves, end pipe fittings, except plumbers' fittings -----mil lb--	(X)	2.1	(X)	.6
339915	Metal powders -----	-	-	-	-
357104	Pumps, complete assemblies (except fluid power) ----- thousands--	(S)	.7	(X)	(⁶)
356810	Plain bearings and bushings -----	(X)	1.9	(X)	.8
356601	Speed changers, drives, end gears -----	(X)	1.0	(X)	.8
358501	Compressors, compressor units, condensing units, fin coils, end other heat transfer equipment -----	(X)	.8	(X)	.3
380101	Electrical transmission, distribution, end control equipment -----	(X)	3.9	(X)	1.3
	Electric motors end generators:				
	Fractional horsepower electric motors (less than 1 hp):				
382110	Timing motors, synchronous end subsynchronous:				
	Purchased ----- thousands--	**6.5	.5	*17.9	.3
	Produced and consumed ----- do--	-	(X)	(S)	(X)
362115	Other fractional horsepower electric motors, excluding timing motors:				
	Purchased ----- do--	(S)	4.1	(S)	1.8
	Produced end consumed ----- do--	(S)	(X)	(S)	(X)

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1982 and 1977—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT—Con.				
362120	Electric motors and generators—Con. Integral horsepower motors and generators (1 hp or more):				
	Purchased thousands..	(S)	5.3	(S)	2.6
	Produced and consumed do..	-	(X)	(S)	(X)
364300	Current-carrying wiring devices	(X)	1.0	(X)	1.0
304101	Rubber and plastics hose and belting	(X)	1.0	(X)	(7)
307903	Plastics products consumed in the form of sheets, rods, tubes, and other shapes				
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes mil lb..	(X)	1.0	(X)	.4
244021	Wooden boxes, skids, pallets, and containers (including combination of wood and paperboard)	(X)	1.2	(X)	(7)
260091	Paper and paperboard containers (including shipping sacks and other paper packing supplies)	(X)	.5	(X)	(7)
970099	All other materials and components, parts, containers, and supplies	(X)	34.2	(X)	724.5
971000	Materials, parts, containers, and supplies, n.s.k. ²	(X)	44.4	(X)	44.4
	INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT				
	Materials, parts, containers, and supplies	(X)	5 555.6	(X)	4 755.7
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes 1,000 s tons..	**56.7	33.2	(S)	30.1
331012	Sheet and strip do..	(S)	328.4	*729.3	301.1
331013	Plates do..	**42.0	23.0	*43.3	16.1
331015	Structural shapes do..	(S)	6.9	(S)	4.9
331017	Wire and wire products do..	(S)	10.6	**15.1	9.1
331019	All other carbon steel mill shapes and forms do..	(S)	37.4	*91.3	42.0
331020	Alloy steel, except stainless do..	*31.2	12.4	*19.7	17.9
	Stainless steel:				
331033	Sheet and strip do..	(S)	51.2	*23.7	42.9
331050	All other stainless steel mill shapes and forms do..	(S)	11.2	**2.4	4.6
335792	Insulated copper wire and cable, except magnet wire (quantity in copper content) mil lb..	(S)	4.7	(S)	7.8
	Copper and copper-base alloy:				
335728	Bare wire for electrical conduction do..	(S)	11.2	*8.0	12.2
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes do..	(S)	17.3	(S)	12.9
335143	Plate, sheet, and strip, including military cups and discs do..	61.6	56.0	(14)	(14)
335152	Pipe and tube do..	(S)	170.5	14289.2	14265.2
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil do..	(S)	207.0	*258.6	196.5
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. do..	(S)	72.1	*74.8	64.2
335008	All other aluminum mill shapes and forms, (wire, rolled rod and bar, powder, welded tubing, etc.) do..	(S)	25.8	**48.4	31.1
	Castings (rough and semifinished):				
332011	Iron (gray and malleable):				
	Purchased 1,000 s tons..	(S)	109.2	*232.3	185.2
	Produced and consumed do..	(S)	(X)	(S)	(X)
332045	Steel:				
	Purchased do..	*10.8	9.6	(S)	7.8
	Produced and consumed do..	(S)	(X)	(S)	(X)
336100	Aluminum and aluminum-base alloy:				
	Purchased mil lb..	*58.0	81.6	43.1	72.6
	Produced and consumed do..	(S)	(X)	(S)	(X)
336200	Copper and copper-base alloy:				
	Purchased do..	(S)	11.2	**22.6	19.2
	Produced and consumed do..	(S)	(X)	(S)	(X)
336902	Other nonferrous:				
	Purchased do..	*4.9	2.0	(X)	(15)
	Produced and consumed do..	(Z)	(X)	(X)	(X)
339915	Metal powders do..	**8.6	8.7	(S)	8.1
346200	Iron and steel forgings:				
	Purchased 1,000 s tons..	**16.3	25.3	22.9	21.7
	Produced and consumed do..	-	(X)	(S)	(X)
342903	Metal hardware, including hinges, handles, locks, casters, etc.	(X)	22.0	(X)	19.7
345001	Bolts, nuts, screws, rivets, washers, and screw machine products do..	(X)	94.7	(X)	74.7
346901	Metal stampings do..	(X)	142.2	(X)	127.5
349402	Fabricated metal pipe, valves, and pipe fittings do..	(X)	58.7	(X)	66.0
	Bearings:				
356218	Ball do..	(X)	35.4	(X)	37.1
356201	Roller do..	(X)	25.5	(X)	12.2
356401	Fans and blowers thousands..	(S)	79.3	(S)	55.1
358501	Compressors, compressors units, fin coils, and other heat transfer equipment do..	(X)	660.9	(X)	554.3
	Electric motors and generators:				
	Fractional horsepower electric motors (less than 1 hp):				
362110	Timing motors, synchronous and subsynchronous:				
	Purchased thousands..	(S)	45.6	3 439.7	72.1
	Produced and consumed do..	(S)	(X)	(S)	(X)
362115	Fractional horsepower electric motors, excluding timing motors:				
	Purchased do..	*20 161.1	346.1	*25 500.0	330.7
	Produced and consumed do..	(S)	(X)	(S)	(X)

See footnotes at end of table.

Table 7. **Materials Consumed by Kind: 1982 and 1977—Con.**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT—Con.				
362120	Electric motors and generators—Con. Integral horsepower motors and generators (1 hp or more):				
	Purchased thousands.....	(S)	213.3	5 900.0	189.8
	Produced and consumed do.....	(S)	(X)	(S)	(X)
360101	Electrical transmission, distribution, and control equipment	(X)	182.4	(X)	111.9
364300	Current-carrying wiring devices	(X)	78.4	(X)	39.7
382201	Automatic temperature controls, thermostats, regulators, etc.	(X)	133.5	(X)	130.2
260091	Paper and paperboard containers	(X)	53.0	(X)	57.7
242101	Rough and dressed lumber mil bd ft.....	(S)	17.1	(S)	16.2
244021	Wooden containers, complete, including combination wood and paperboard	(X)	14.1	(X)	19.1
282104	Plastics resins consumed in the form of granulas, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes mil lb.....	76.3	37.7	(S)	43.8
285101	Paints, varnishes, lacquars, shallacs, japans, and anamals	(X)	29.2	(X)	26.6
286903	Rafrigerant gases and other synthatic organic chemicals	(X)	43.7	(X)	27.0
307902	Fabricatad plastics products, axcept gaskats, hose, and belting	(X)	54.4	(X)	56.4
307903	Plastics products consumed in tha form of sheets, rods, tubes, and other shapas	(X)	31.5	(X)	28.1
306902	Fabricatad rubbar products, axcept tiras, tubes, hosa, belting, and gaskats	(X)	20.8	(X)	24.4
329601	Mineral wool insulation (fibrous glass, rock wool, etc.)	(X)	19.4	(X)	19.4
329300	Gaskats, all tybas, and asbestos packing	(X)	13.4	(X)	(15)
304101	Rubber and plastics hose and belting	(X)	20.7	(X)	(15)
970099	All other materials and componants, parts, containers, and supplias	(X)	963.7	(X)	18976.4
971000	Materials, parts, containars, and supplias, n.s.k. ²	(X)	792.4	(X)	266.6
	INDUSTRY 3586, MEASURING AND DISPENSING PUMPS				
	Materials, parts, containars, and supplias	(X)	267.4	(X)	142.3
	Mill shapas and forms, excapt castings and forgings:				
	Carbon steel:				
331012	Sheat and strip 1,000 s tons.....	(S)	8.4	(18)	(18)
331011	Bars and bar shapas do.....	(S)	7.5	11.1	7.8
331013	Plates do.....	(S)	1.1	1813.9	186.9
331015	Structural shapas do.....	(S)	.6	.6	.3
331055	All other carbon staal mill shapas and forms	2.1	2.8	3.6	1.2
	Alloy staal, axcept stainless:				
331021	Bars and bar shapas do.....	.2	.2	(17)	(17)
331029	All other alloy steel mill shapas and forms	-	-	171.0	17.4
	Stainless steel:				
331033	Sheet and strip do.....	(S)	8.6	.9	1.8
331050	All other stainless staal mill shapas and forms	(S)	.6	(S)	.8
335792	Insulatad copper wira and cable, except magnet wira (quantity of copper content) mil lb.....	** .1	.2	(Z)	.2
	Copper and copper-base alloy:				
335102	Rod, bar, and mechanical wira, including extruded rod, bar, pipe, tuba, etc. do.....	(D)	(18)	(S)	.8
335143	Plate, sheet, and strip, including military cups and discs	(D)	(18)	(S)	(18)
335152	Pipe and tube do.....	(Z)	(Z)	(S)	19.2
	Aluminum and aluminum-basa alloy:				
335405	Extrudad shapas, Including axtruded rod, bar, pipe, tube, etc. do.....	(S)	.2	1.3	.8
335011	All other aluminum mill shapas and forms (wira, rolled rod and bar, powdar, welded tubing, sheet, plata, foil, etc.) do.....	.1	.7	(S)	.2
335609	Nonferrous metal mill shapas and forms, axcept copper and aluminum 1,000 s tons.....	(D)	(18)	-	-
	Primary mataals:				
331051	Pig iron, excluding silvery iron do.....	-	-	-	-
333122	Copper and copper-base alloy refinaty shapas do.....	-	-	-	-
339915	Metal powders mil lb.....	(Z)	(Z)	(Z)	(Z)
190023	Iron and steel scrap, excluding home scrap 1,000 s tons.....	-	-	-	-
	Castings (rough and semifinished):				
332011	Iron (gray and mallaable):				
	Purchased do.....	(S)	12.4	(20)	(20)
	Produced and consumed do.....	-	(X)	(S)	(X)
332045	Steel:				
	Purchased do.....	(D)	(18)	20**8.7	207.3
	Produced and consumed do.....	-	(X)	(S)	(X)
336100	Aluminum and aluminum-base alloy:				
	Purchased mil lb.....	(S)	8.9	(13)	(13)
	Produced and consumed do.....	(D)	(X)	(S)	(X)
336200	Copper and copper-base alloy:				
	Purchased do.....	(D)	(18)	3.2	134.9
	Produced and consumed do.....	-	(X)	(S)	(X)
336902	Other nonfarrous:				
	Purchased do.....	(S)	1.4	(X)	(21)
	Produced and consumed do.....	-	(X)	(X)	(X)
346200	Iron and staal forgings:				
	Purchasad 1,000 s tons.....	(Z)	(Z)	(D)	(D)
	Producad and consumed do.....	-	(X)	(S)	(X)
344301	Metal tanks, heat exchangers, steam condensers, and othar boiler products, fabricatad staal plate, and weldments	(X)	.6	(X)	.6
346701	Matal stampings 1,000 s tons.....	(S)	1.2	(X)	(21)
345001	Bolts, nuts, screws, rivets, and screw machine products	(X)	1.9	(X)	3.9
349402	Fabricatad metal pipe, valves, and pipe fittings	(X)	4.0	(X)	.9
354501	Cutting tools for machine tools	(X)	.7	(X)	.4
356101	Pumps and pump parts used as materials thousands.....	(S)	3.0	(S)	(22)

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1982 and 1977—Con.

Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
INDUSTRY 3586, MEASURING AND DISPENSING PUMPS—Con.					
356301	Air and gas compressors, except refrigeration ----- thousands..	-	-	(S)	22.9
360101	Electrical transmission, distribution, and control equipment -----	(X)	(1 ⁸)	(X)	.5
Engines:					
351920	Diesel and semidiesel:				
	Purchased ----- thousands..	-	-	-	-
	Produced and consumed ----- do..	-	(X)	(S)	(X)
351901	Gasoline and other carburetor engines:				
	Purchased ----- do..	-	-	-	-
	Produced and consumed ----- do..	-	(X)	(S)	(X)
Electric motors and generators:					
362115	Fractional horsepower electric motors (less than 1 hp), excluding timing motors:				
	Purchased ----- do..	*645.0	12.9	**189.8	6.6
	Produced and consumed ----- do..	-	(X)	(S)	(X)
362120	Integral horsepower motors and generators (1 hp or more):				
	Purchased ----- do..	(S)	.2	4.7	.4
	Produced and consumed ----- do..	-	(X)	(S)	(X)
Bearings:					
356218	Ball -----	(X)	1.6	(X)	.8
356201	Roller -----	(X)	-	(X)	.1
356810	Plain bearings and bushings -----	(X)	1.1	(X)	.4
356601	Speed changers, drives, and gears -----	(S)	2.3	(X)	(21)
265001	Paperboard containers, boxes, and corrugated paperboard -- 1,000 s tons..	(X)	3.9	(X)	(21)
304101	Rubber and plastics hose and belting -----	(X)	.8	(X)	.7
306902	Fabricated rubber products (except tires, tubes, belts, hoses, and gaskets) -----	(X)	3.1	(X)	3.0
307902	Fabricated plastics products (except gaskets, hose, and belting) -----	(X)	.5	(X)	(21)
329300	Gaskets (all types) and asbestos packing -----	(X)	(1 ⁸)	(X)	(21)
357301	Electronic computing equipment and parts -----	(X)	18151.2	(X)	2178.5
370099	All other materials and components, parts, containers, and supplies -----	(X)	25.4	(X)	9.8
371000	Materials, parts, containers, and supplies, n.s.k. ² -----	(X)		(X)	
INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.					
Materials, parts, containers, and supplies -----					
		(X)	1 092.7	(X)	752.0
Mill shapes and forms, except castings and forgings:					
Carbon steel:					
31011	Bars and bar shapes ----- 1,000 s tons..	(S)	7.7	(S)	6.8
31012	Sheet and strip ----- do..	(S)	26.3	(S)	27.9
31013	Plates ----- do..	(S)	13.0	(S)	13.9
31015	Structural shapes ----- do..	22.1	18.1	(S)	4.7
31017	Wire and wire products ----- do..	(S)	7.1	(S)	2.0
31019	All other carbon steel mill shapes and forms ----- do..	(S)	4.6	**20.9	10.7
31020	Alloy steel, except stainless ----- do..	**5.5	2.5	(S)	2.2
Stainless steel:					
31033	Sheet and strip ----- do..	(S)	44.9	*18.8	29.3
31050	All other stainless steel mill shapes and forms ----- do..	(S)	15.9	(S)	13.6
35792	Insulated copper wire and cable, except magnet wire (quantity in copper content) ----- mil lb..	(S)	4.1	(X)	(7)
Aluminum and aluminum-base alloy:					
35301	Sheet, plate, and foil ----- do..	(S)	6.2	(S)	2.5
35006	All other aluminum mill shapes and forms (wire, rod, bar, powder, welded tubing, extruded shapes, etc.) ----- do..	.8	8.8	(S)	8.8
Castings (rough and semifinished):					
Iron (gray and malleable):					
32011	Purchased ----- 1,000 s tons..	(S)	18.3	**12.5	14.1
	Produced and consumed ----- do..	(Z)	(X)	(S)	(X)
Steel:					
32045	Purchased ----- do..	**3.5	6.8	(X)	(7)
	Produced and consumed ----- do..	(Z)	(X)	(X)	(X)
Aluminum and aluminum-base alloy:					
36100	Purchased ----- mil lb..	(S)	11.9	(S)	12.2
	Produced and consumed ----- do..	(S)	(X)	(S)	(X)
Copper and copper-base alloy:					
36200	Purchased ----- do..	(S)	3.9	3.1	2.5
	Produced and consumed ----- do..	(S)	(X)	(S)	(X)
Other nonferrous:					
36902	Purchased ----- do..	(S)	.7	(X)	(7)
	Produced and consumed ----- do..	-	(X)	(X)	(X)
45001	Bolts, nuts, screws, rivets, and screw machine products -----	(X)	15.5	(X)	7.6
46901	Metal stampings -----	(X)	8.0	(X)	2.9
49402	Fabricated metal pipe, valves, and pipe fittings, except plumbers' fittings ----- mil lb..	(X)	29.0	(D)	(22)
39915	Metal powders -----	(S)	.1	(S)	2313.5
56104	Pumps, complete assemblies (except fluid power) ----- thousands..	(S)	12.7	(X)	(7)
56810	Plain bearings and bushings -----	(X)	5.6	(X)	3.2
56601	Speed changers, drives, and gears -----	(X)	13.2	(X)	5.0
58501	Compressors, compressor units, condensing units, fin coils, and other heat transfer equipment -----	(X)	3.8	(X)	5.6
60101	Electrical transmission, distribution, and control equipment -----	(X)	25.2	(X)	11.2
Electric motors and generators:					
Fractional horsepower electric motors (less than 1 hp):					
62110	Timing motors, synchronous and subsynchronous:				
	Purchased ----- thousands..	(S)	9.1	*770.2	10.0
	Produced and consumed ----- do..	(Z)	(X)	(S)	(X)
62115	Other fractional horsepower electric motors, excluding timing motors:				
	Purchased ----- do..	(S)	30.0	*1 102.3	24.8
	Produced and consumed ----- do..	(Z)	(X)	(S)	(X)

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1982 and 1977—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.—Con.				
362120	Electric motors and generators—Con. Integral horsepower motors and generators (1 hp or more):				
	Purchased thousands..	(S)	22.1	**98.1	10.0
	Produced and consumed do..	(Z)	(X)	(S)	(X)
364300	Current-carrying wiring devices	(X)	13.7	(X)	9.9
304101	Rubber and plastics hose and belting	(X)	5.1	(X)	(7)
307903	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	29.5	(X)	9.9
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes mil lb..	(S)	25.2	*15.7	9.1
244021	Wooden boxes, skids, pallets, and containers (including combination of wood and paperboard)	(X)	5.0	(X)	(7)
260091	Paper and paperboard containers (including shipping sacks and other paper packing supplies)	(X)	17.2	(X)	(7)
970099	All other materials and components, parts, containers, and supplies	(X)	349.8	(X)	7273.6
971000	Materials, parts, containers, and supplies, n.s.k. ²	(X)	274.5	(X)	206.7
	INDUSTRY 3592, CARBURETORS, PISTONS, RINGS, AND VALVES				
	Materials, parts, containers, and supplies	(X)	718.7	(X)	451.9
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes 1,000 s tons..	24.8	18.3	18.4	13.1
331012	Sheet and strip do..	29.7	14.6	27.4	16.7
331013	Plates do..			.7	.2
331015	Structural shapes do..	*9.2	5.4	(13)	(13)
331017	Wire and wire products do..			(24)	(24)
331019	All other carbon steel mill shapes and forms do..	(S)	2.4	248.4	249.2
	Alloy steel, except stainless:				
331021	Bars and bar shapes do..			12.4	13.1
331029	All other alloy steel mill shapes and forms do..	(S)	16.5	**2.1	3.3
	Stainless steel:				
331033	Sheet and strip do..	3.9	2.5	*.7	1.8
331050	All other stainless steel mill shapes and forms do..	7.2	21.7	15.5	28.4
	Copper and copper-base alloy:				
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes mil lb..	(D)	(25)	2.7	2.2
335143	Plate, sheet, and strip, including military cups and discs do..	**3	.3	(26)	(26)
335152	Pipe and tube do..	(S)	259.3	26.4	261.2
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil do..	(D)	(27)	(28)	(28)
335405	Extruded shapes, including rod, bar, pipe, tube, etc. do..	25.9	14.1	2813.3	287.5
335008	All other aluminum mill shapes and forms (wire, rolled rod and bar, powder, welded tubing, etc.) do..	(S)	2711.0	31.0	16.7
335609	Nonferrous metal, except copper and aluminum do..	(S)	1.7	(D)	.6
	Castings (rough and semifinished):				
332011	Iron (gray and malleable):				
	Purchased 1,000 s tons..	(S)	36.0	*42.3	59.0
	Produced and consumed do..	(S)	(X)	(S)	(X)
332045	Steel:				
	Purchased do..	**7	2.0	*3.6	3.7
	Produced and consumed do..	(S)	(X)	(S)	(X)
336100	Aluminum and aluminum-base alloy:				
	Purchased mil lb..	*29.4	37.2	**37.2	21.8
	Produced and consumed do..	2.9	(X)	(S)	(X)
336200	Copper and copper-base alloy:				
	Purchased do..	(D)	(29)	(S)	2.0
	Produced and consumed do..	(D)	(X)	(S)	(X)
336902	Other nonferrous:				
	Purchased do..	(S)	2923.7	(X)	(30)
	Produced and consumed do..	(D)	(X)	(X)	(X)
345001	Bolts, nuts, screws, rivets, and screw machine products	(X)	32.0	(X)	16.9
349521	Precision mechanical springs	(X)	4.1	(X)	(30)
190037	Used carburetors, and parts thereof, for rebuilding	(X)	2.1	(X)	(30)
354501	Cutting tools for machine tools	(X)	6.9	(X)	(30)
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets				
307004	Fabricated plastics products, except hose, belting, and gaskets	(X)	20.5	(X)	(30)
329321	Gaskets	(X)	8.5	(X)	(30)
970099	All other materials and components, parts, containers, and supplies	(X)	374.9	(X)	30218.0
971000	Materials, parts, containers, supplies, n.s.k. ²	(X)	53.0	(X)	16.5
	INDUSTRY 3599, MACHINERY, EXCEPT ELECTRICAL, N.E.C.				
	Materials, parts, containers, and supplies	(X)	3 055.8	(X)	1 777.0
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes 1,000 s tons..	(S)	135.1	(S)	101.7
331012	Sheet and strip do..	(S)	38.8	(S)	32.0
331013	Plates do..	(S)	53.6	(S)	44.9
331015	Structural shapes do..	(S)	24.6	(S)	9.6
331017	Wire and wire products do..	(S)	3.0	**7.3	4.4
331019	All other carbon steel mill shapes and forms do..	(S)	48.4	**47.2	36.7

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1982 and 1977—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3599, MACHINERY, EXCEPT ELECTRICAL, N.E.C.—Con.				
	Mill shapes and forms, except castings and forgings—Con.				
	Alloy steel, except stainless:				
331021	Bars and bar shapes 1,000 s tons--	(S)	59.1	(S)	34.5
331029	All other alloy steel mill shapes and forms do--	(S)	27.5	(S)	14.3
	Stainless steel:				
331033	Sheet and strip do--	(S)	35.1	(S)	21.4
331050	All other stainless steel mill shapes and forms do--	(S)	58.4	**20.4	43.5
	Copper and copper-base alloy:				
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes mil lb--	(S)	15.9	(S)	9.6
335143	Plate, sheet, and strip, including military cups and discs do--	(S)	6.8	(S)	2.8
335152	Pipe and tube do--	(S)	6.9	(S)	4.2
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil do--	(S)	33.2	(S)	14.8
335405	Extruded shapes, including rod, bar, pipe, tube, etc. do--	(S)	43.0	(S)	16.7
335008	All other aluminum mill shapes and forms (wire, rolled rod and bar, powder, welded tubing, etc.) do--	(S)	10.2	(S)	6.2
335609	Nonferrous metal, except copper and aluminum do--	(S)	6.9	(S)	5.7
	Castings (rough and semifinished):				
332011	Iron (gray and malleable):				
	Purchased 1,000 s tons--	(S)	53.3	(S)	47.2
	Produced and consumed do--	(S)	(X)	(S)	(X)
332045	Steel:				
	Purchased do--	(S)	46.8	(S)	24.9
	Produced and consumed do--	(S)	(X)	(S)	(X)
336100	Aluminum and aluminum-base alloy:				
	Purchased mil lb--	(S)	54.3	(S)	17.2
	Produced and consumed do--	(S)	(X)	(S)	(X)
336200	Copper and copper-base alloy:				
	Purchased do--	(S)	10.7	(S)	6.8
	Produced and consumed do--	(S)	(X)	(S)	(X)
336902	Other nonferrous:				
	Purchased do--	(S)	21.5	(X)	(³¹)
	Produced and consumed do--	(S)	(X)	(X)	(X)
345001	Bolts, nuts, screws, rivets, and screw machine products do--	(X)	30.5	(X)	13.6
970099	All other materials and components, parts, containers, and supplies do--	(X)	491.7	(X)	³¹ 296.9
971000	Materials, parts, containers, supplies, n.s.k. ² do--	(X)	1 740.6	(X)	967.4

¹For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

²Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

³For 1977, material code 331011 was combined with material code 331012 to avoid disclosing data for individual companies.

⁴For 1977, material codes 331013, 331015, 331017, and 331019 were combined to avoid disclosing data for individual companies.

⁵For 1977, material code 331033 was combined with material code 331050 to avoid disclosing data for individual companies.

⁶For 1982, material codes 335792, 336100, 349402, 362120, and 282104 were included with material code 970099 in industry 3581.

⁷For 1977, material codes 335792, 332045, 336902, 356104, 304101, 244021, and 260091 were combined with material code 970099 to avoid disclosing data for individual companies.

⁸For 1977, material code 349402 was combined with material code 339915 to avoid disclosing data for individual companies.

⁹For 1977, material code 307903 was combined with material code 282104 to avoid disclosing data for individual companies.

¹⁰For 1977, material code 331017 was combined with material code 331019.

¹¹For 1982 and 1977, material code 331020 was combined with material code 331050 to avoid disclosing data for individual companies.

¹²For 1982, material codes 332045 and 338200 were combined with material code 336902 to avoid disclosing data for individual companies.

¹³For 1977, material code 338100 was combined with material code 338200 to avoid disclosing data for individual companies.

¹⁴For 1977, material code 335143 was combined with material code 335152.

¹⁵For 1977, material codes 336902, 329300, and 304101 were combined with material code 970099.

¹⁶For 1977, material codes 331012 and 331013 were combined to avoid disclosing data for individual companies.

¹⁷For 1977, material codes 331021 and 331029 were combined to avoid disclosing data for individual companies.

¹⁸For 1982, material codes 335102, 335143, 335609, 332045, 336200, 360101, and 357301 were combined with material code 970099 in industry 3586.

¹⁹For 1977, material codes 335143 and 335152 were combined to avoid disclosing data for individual companies.

²⁰For 1977, material codes 332011 and 332045 were combined to avoid disclosing data for individual companies.

²¹For 1977, material codes 336902, 346701, 265001, 304101, 329300, and 357301 were included with material code 970099.

²²For 1977, material codes 356101 and 356301 were combined to avoid disclosing data for individual companies.

²³For 1977, material codes 349402 and 339915 were combined to avoid disclosing data for individual companies.

²⁴For 1977, material codes 331015, 331017, and 331019 were combined to avoid disclosing data for individual companies.

²⁵For 1982, material codes 335102 and 335152 were combined to avoid disclosing data for individual companies.

²⁶For 1977, material codes 335143 and 335152 were combined to avoid disclosing data for individual companies.

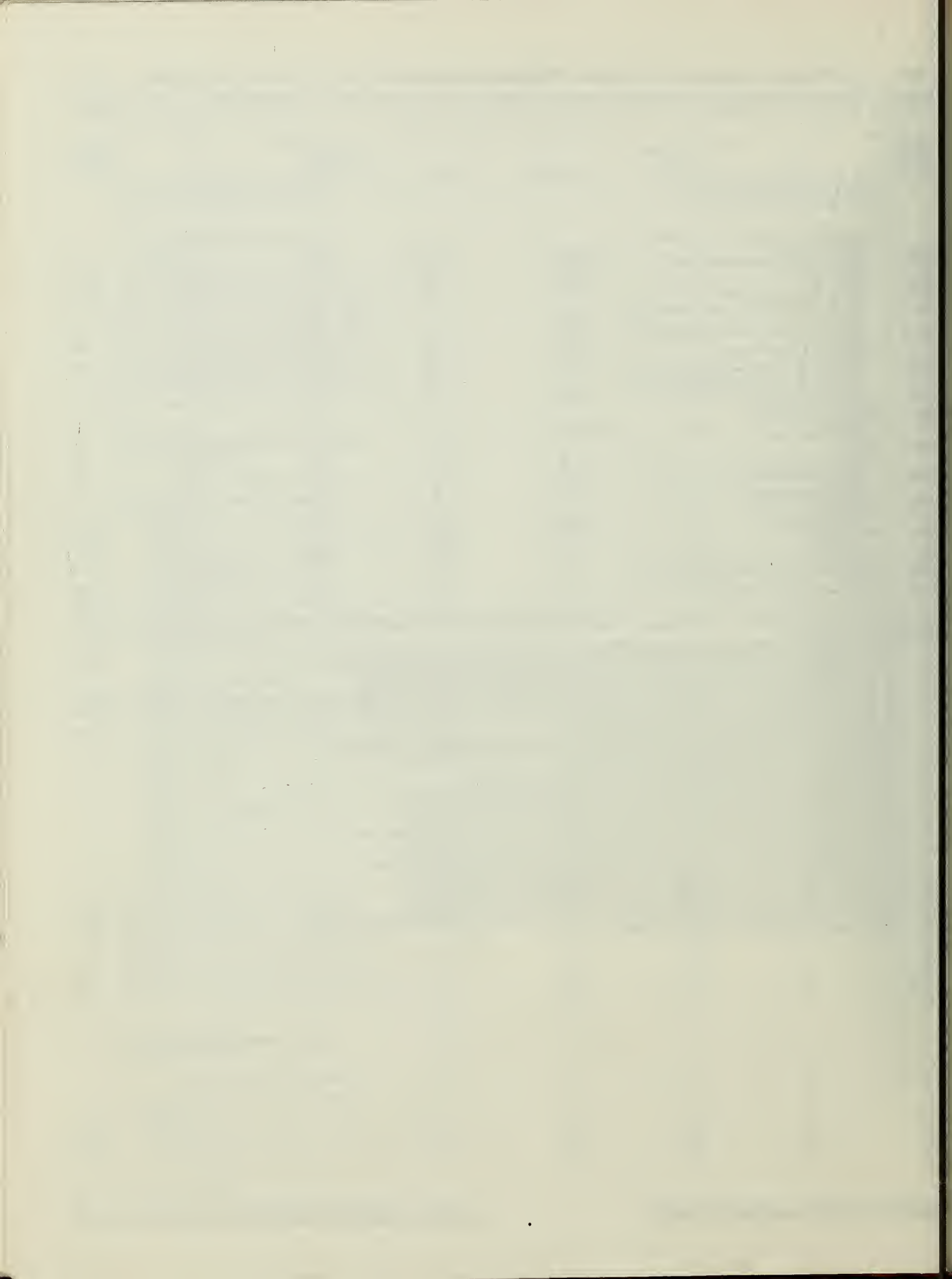
²⁷For 1982, material codes 335301 and 335008 were combined to avoid disclosing data for individual companies.

²⁸For 1977, material codes 335301 and 335405 were combined to avoid disclosing data for individual companies.

²⁹For 1982, material codes 336200 and 336902 were combined to avoid disclosing data for individual companies.

³⁰For 1977, material codes 336902, 349521, 190037, 354501, 306902, 307004, and 329321 were included with material code 970099.

³¹For 1977, material code 336902 was included in code 970099.



APPENDIX A.

Explanation of Terms

This appendix is in two sections. Section 1 includes items which were requested of all establishments that were mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) that were not included on the report forms but were derived from information collected on the forms. Section 2 covers supplementary items that were requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in tables 3c and 3d of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies—As discussed in the Introduction, a separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operates at different physical locations, even if the individual locations are producing the same line of goods, a separate report was requested for each location. If the company operates in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on the number of custodial employees, capital expenditures, inventories, or any shipments from inventories during the portion of the year the plant was in operation.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction to Part 1 of the General Summary subject report.

Employment and related items—The regular report forms requested separate information on production workers as of a payroll period for each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees—This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period ending nearest the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers—This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees—This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment who are engaged in the construction of major additions or alterations to the plant and who are utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls was also requested of auxiliary units (e.g., administrative offices, warehouses, and research and development laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the general summary and geographic area reports and in the final bound volumes as a separate category.

Payrolls—This item includes the gross earnings of all employees on the payroll of operating manufacturing establishments paid in the calendar year 1982. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, all bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers

of corporations, but excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payroll of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours—This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials—This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, components, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed—In addition to the total cost of materials, which every establishment was required to report, information was also collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the specific materials consumed is shown in table 7 if appropriate to the industry. Establishments consuming less than a specified amount (usually \$10,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as "not specified by kind." (See the Introduction for the importance of administrative records in the industry.)

Value of shipments—This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further

processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of "all other costs" (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products—As in previous censuses, data were collected for almost all industries on the quantity and value of individual products shipped. In the 1982 census program, information was collected on the output of approximately 11,000 individual product items. The term "product," as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term "product" as used in the marketing sense. In some cases it may be much more detailed and, in other cases, it is more aggregative. For example, "pharmaceutical preparations" was distributed into over 100 items; whereas, "motor gasoline" was reported as a single item.

Approximately 6,000 of the product items were listed separately on the 1982 census report forms. Data for about 5,000 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1982 for these items, as derived from the commodity surveys, are shown in the "products shipped" table (table 6a) together with the tieline total value collected in the census for reconciliation purposes.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1977 information is presented for most products.

Typically, both quantity and value of shipments information was collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers was also collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production was also collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products—To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the

individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Introduction, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1982 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, and the like. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments—The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication, since the products of some industries are used as materials by others. With some important exceptions, such as for motor vehicles and parts, this duplication is not significant at the four-digit industry level. However, it is significant at the two-digit and three-digit industry group level because these totals often include industries that represent successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the "Food" group and the addition of pulp mills to paper mills in the "Paper and Allied Products" group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the census of manufactures.

Value added by manufacture—This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

Because of the change in instructions for reporting inventories for 1982, the 1982 figure for value added is not strictly comparable to prior-year data. This is explained more fully in the inventories section below.

"Value added" avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures—For establishments in operation and establishments under construction but not yet in operation, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures exclude that portion of expenditures leased from nonmanufacturing concerns, new facilities owned by the Federal Government but operated under

contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers were also requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred to the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; i.e., it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form and is subject to sampling error (see table 3d). The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in both tables 3a and 3d. The figure in table 3a is a census universe total and may differ from the results of the ASM sample shown in table 3d. Since the figures in table 3d are subject to sampling error, they are not considered as reliable as the universe figures.

End-of-year inventories—Respondents were asked to report their 1981 and 1982 end-of-year inventories at cost or market. Effective with the 1982 Economic Censuses, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications. Inventories and value added data estimated on a basis comparable to the historical data, using the reported information for 1982, are shown in footnote 4 of table 1a. However, the end-of-1981 figure shown in this footnote may differ from the corresponding value published as part of the 1981 Annual Survey of Manufactures.

This difference at the four-digit SIC level is due primarily to the effects of industry shifts. As described in the Industry Classification of Establishments section of the Introduction, ASM noncertainty plants are allowed to shift from one industry to another in a census year; whereas, they are "frozen" in a particular industry in ASM years. Other explanations for this difference include the effects of sampling and processing errors and revisions to end-of-1981 data reported by respondents.

In using inventory data by stage of fabrication for "all industries" and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw

materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and "all manufacturing," which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios—These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

As noted in the Introduction, an establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary

products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

Supplemental labor costs—Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees. While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records do not generally provide reliable figures on net employee benefits of these types.

Cost of purchased services—ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, and communication services. Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property are also included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force are also excluded.

The response coverage ratio shown in table 3d for each of the three types of purchased services listed above is a measure of the extent to which respondents reported for each item. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight; see section 3) for those ASM establishments that reported the

specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Electric energy used for heat and power—Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy and quantity of generated-less-sold electric energy were collected only on the ASM forms. The cost and quantity of purchased electric energy represent the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Beginning- and end-of-year depreciable assets—The data encompass all fixed depreciable assets on the books of establishments at the beginning and at the end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are non-depreciable capital assets, including inventories and intangible assets, such as patent rights and royalties. Also excluded are land and depletable assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures—The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Breakdown of new capital expenditures for machinery and equipment—ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category "automobiles, trucks, etc., for highway use" is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

The "not specified by kind" or n.s.k. item for expenditures for new machinery and buildings, shown in table 3d, represents the total machinery and equipment expenditures for establishments that did not break down their expenditures for the three specific categories. This means that for most industries the specific categories are understated.

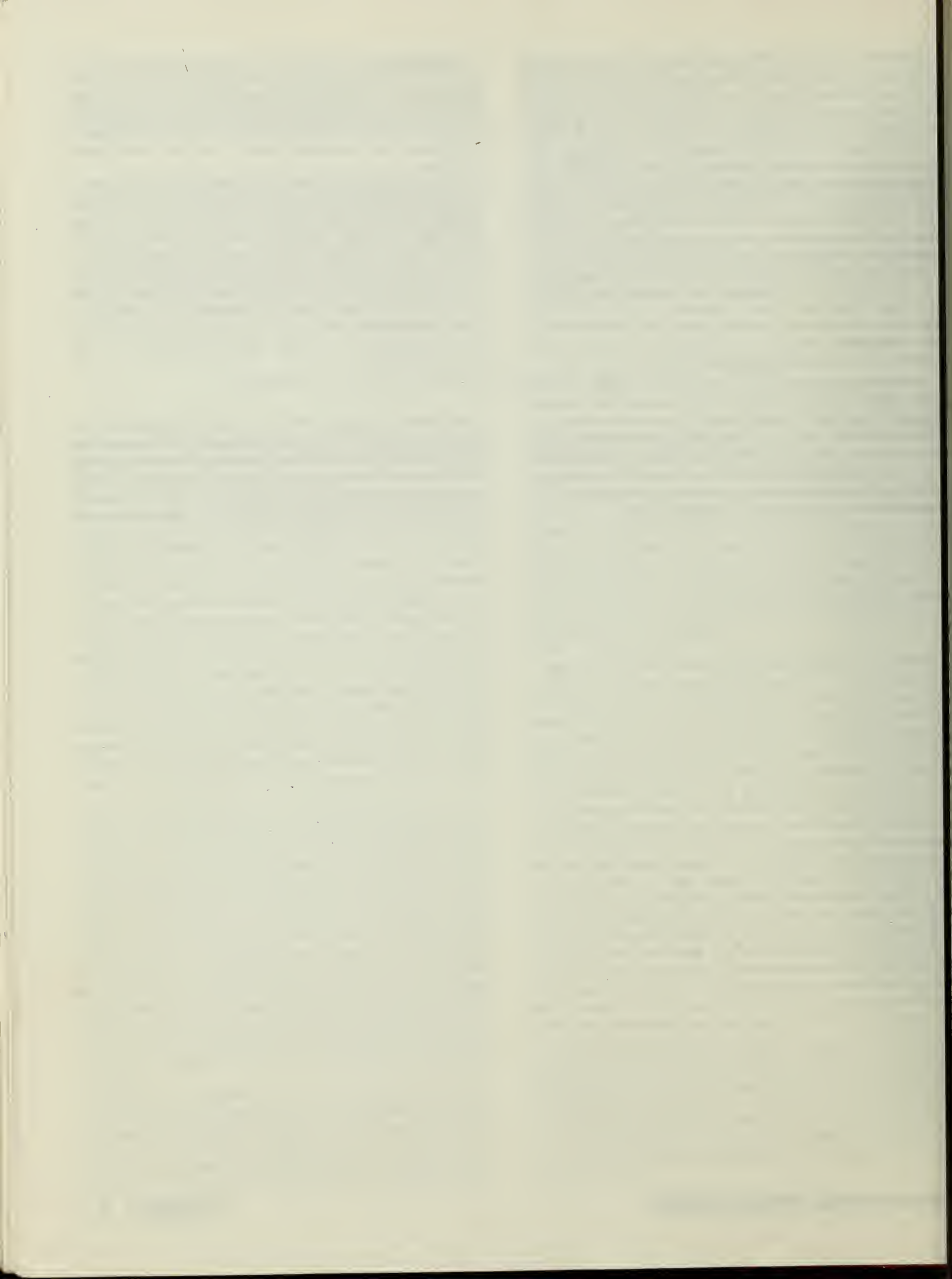
Retirements—Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1982. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent was also requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Rental payments—This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company, and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciation charges—This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.



APPENDIX B.

Annual Survey of Manufactures (ASM) Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The Annual Survey of Manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 55,000 manufacturing establishments selected from a total of about 225,000 establishments. These 225,000 establishments represent all manufacturing establishments of multiunit companies and all single-unit manufacturing establishments with five employees or more tabulated in the 1977 Census of Manufactures. This mail portion is supplemented by a Social Security Administration list of new manufacturing establishments opened after 1977. The individual establishments were defined as the sampling unit for this sample. This is a change from the previous ASM sample when companies were used as the sampling unit. The implication of this change is that the probability of selection of any establishment relates only to the size of the establishment itself and is independent of the size of the company with which the establishment is affiliated. The efficiencies associated with the change to an establishment sample have made it possible to reduce the mail sample panel from 70,000 establishments in 1978 to 55,000 establishments in the current panel.

The nonmail portion of the survey includes all single-unit establishments that were tabulated with less than five employees in the 1977 Census of Manufactures. Although this portion contained approximately 125,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of other Federal agencies. This administrative record information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under special conditions, which safeguard the confidentiality of both tax and census records. Estimates for data for these small establishments were developed using industry averages in conjunction with the administrative information.

The corresponding estimates for the mail and nonmail establishments were added together, along with the adjusted base-year differences as defined in Description of Estimating Procedures below. The remaining description of the survey sample relates only to the mail portion of the ASM sample.

All establishments with 250 employees or more in the 1977 census were included in the survey panel with certainty. These establishments collectively account for approximately 65 percent of the total value of shipments for manufacturing establishments in the 1977 census. Smaller establishments were sampled with probabilities ranging from 1.000 down to 0.005 in accordance with mathematical theory for optimum allocation of a sample.

The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. For establishments included in the 1977 Census of Manufactures, the measure of size depended directly upon each establishment's 1977 product class values and the

historic variability of the year-to-year shipments of each product class. Roughly equivalent measures of size were assigned to postcensus birth establishments based on their industry codes and anticipated payroll and employment.

The method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight to differences in employment, value added, and other general statistics, for these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of establishments into and out of a given sample panel without introducing a bias into the survey estimates.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1978-1981 were computed using a modified "difference estimate" formula. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1977 census published number for an item total and the linear ASM estimate of the total for 1977. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

This base-year difference was then adjusted to reflect the estimated growth at the four-digit or, in the case of product classes, five-digit based Standard Industrial Classification (SIC) level from 1977 to the year of the survey; for example, 1981. It should be noted that due to processing constraints, the growth factors lagged one year; i.e., if 1981 is the survey year, they were not based on the estimated growth from 1977 to 1981 but rather the growth from 1977 to 1980. This one-year lag had negligible effect on the estimates, particularly at the total manufacturing level where the adjusted base-year difference accounted for less than 1 percent of the estimate for total value of shipments.

These adjusted base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail establishments, to produce the estimates for the years 1978-1981. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

The 1982 sample data included in table 3d were also developed using difference estimates. However, since the universe totals for the census year (1977 or 1982) were not known, a modification of the procedure described above was necessary. For each item in table 3d, except purchased services and breakdown of expenditures for new machinery and equipment (see further description in appendix A, section 2), linear

estimates of the publication totals from the ASM mail sample were adjusted by the difference between imputed census totals and the corresponding ASM mail sample estimates of these imputed totals. These imputed totals are obtained by applying industry average ratios to control item values at the establishment level. For example, an imputed total beginning assets figure is obtained by multiplying each establishment's total value of shipments by the industry (four-digit SIC) average for the ratio of beginning assets to shipments.

Separate estimates for the nonmail establishments were not developed. However, their contribution to the publication estimates is reflected in the difference adjustment.

The method of inventory valuation percentages included in table 3c was developed using both complete census information and ASM estimates. The percentages for the four major categories (LIFO, non-LIFO, valuation method not reported, and LIFO reported without associated value and reserve) were derived from the complete census and correspond to the values included in table 3d. The percentages for the specific non-LIFO methods of valuations (FIFO, average cost, specific costs, etc.) are ratio estimates developed from the ASM in conjunction with the census universe estimate for the total of the non-LIFO methods.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. Except for table 3c, they are presented in the form of relative standard errors, the standard errors divided by the estimated values to which they refer. In table 3c, "absolute" standard errors of the estimates are presented.

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

2. From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total and about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors would also occur if a complete canvass were to be conducted under the same conditions as the survey.

Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

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PUBLICATION PROGRAM

1982 CENSUS OF MANUFACTURES

Publications of the 1982 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publication order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, D.C. 20233

Preliminary Reports

Preliminary industry data are issued in 443 separate reports covering 452 industries (or combinations of industries). Preliminary data for States are grouped and released in reports for each of the nine census geographic divisions.

Final Reports

Final detailed statistics are issued in separate paperbound reports.

Industry series—82 reports (MC82-I-20A to -39D)

Each of the 82 reports provides information for a group of related industries (e.g., "dairy products" includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 452 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment and degree of primary product specialization. Statistics are given on production of specific products and consumption of energy and various materials by industry.

Geographic area series—51 reports (MC82-A-1 to -51)

A separate report for each State and the District of Columbia presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, SMSA's, and large industrial counties and places. Comparative statistics for earlier census years are shown for the State and large SMSA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics—including inventories, assets, rents, and energy costs—are presented only on statewide totals.

Subject series—10 reports (MC82-S-1 to -10)

Each of the 10 reports contains detailed statistics for an individual subject, such as: selected materials consumed, selected metalworking

operations, manufacturing activity in government establishments, concentration ratios in manufacturing, type of organization, water use in manufacturing, fuels and electric energy consumed (separate publications for industry statistics, and State and SMSA statistics), textile machinery in place, production indexes, and a general National-level summary.

Final Report Volumes

Final paperbound reports subsequently are assembled and reissued in clothbound volumes.

- Volume I. Summary and Subject Statistics—data previously issued in series MC82-S.
 - Part 1. Major Groups 20 to 26
 - Part 2. Major Groups 27 to 34
 - Part 3. Major Groups 35 to 39
- Volume II. Industry Statistics—data previously issued in series MC82-I.
 - Part 1. Alabama to Montana
 - Part 2. Nebraska to Wyoming
- Volume III. Geographic Area Statistics—data previously issued in series MC82-A.

Microfiche

All published data also are available on microfiche.

Computer Tapes

Selected data—generally detailed information by industry and/or geographic area—also are available on public-use computer tapes. For the selected data, these tapes will provide the same information found in the final reports. Public-use computer tapes are available for users who wish to summarize, rearrange, or process large amounts of data. These tapes, with corresponding technical documentation, are sold by Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, D.C. 20233.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, service industries, construction industries, mineral industries, enterprise statistics, minority-owned businesses, women-owned businesses, and transportation also are issued as part of the 1982 Economic Censuses. A separate series of reports covers the censuses of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Northern Mariana Islands. All published reports and microfiche are sold by the Superintendent of Documents, U. S. Government Printing Office. Appropriate announcements and order forms describing these products are available free of charge from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, D.C. 20233.

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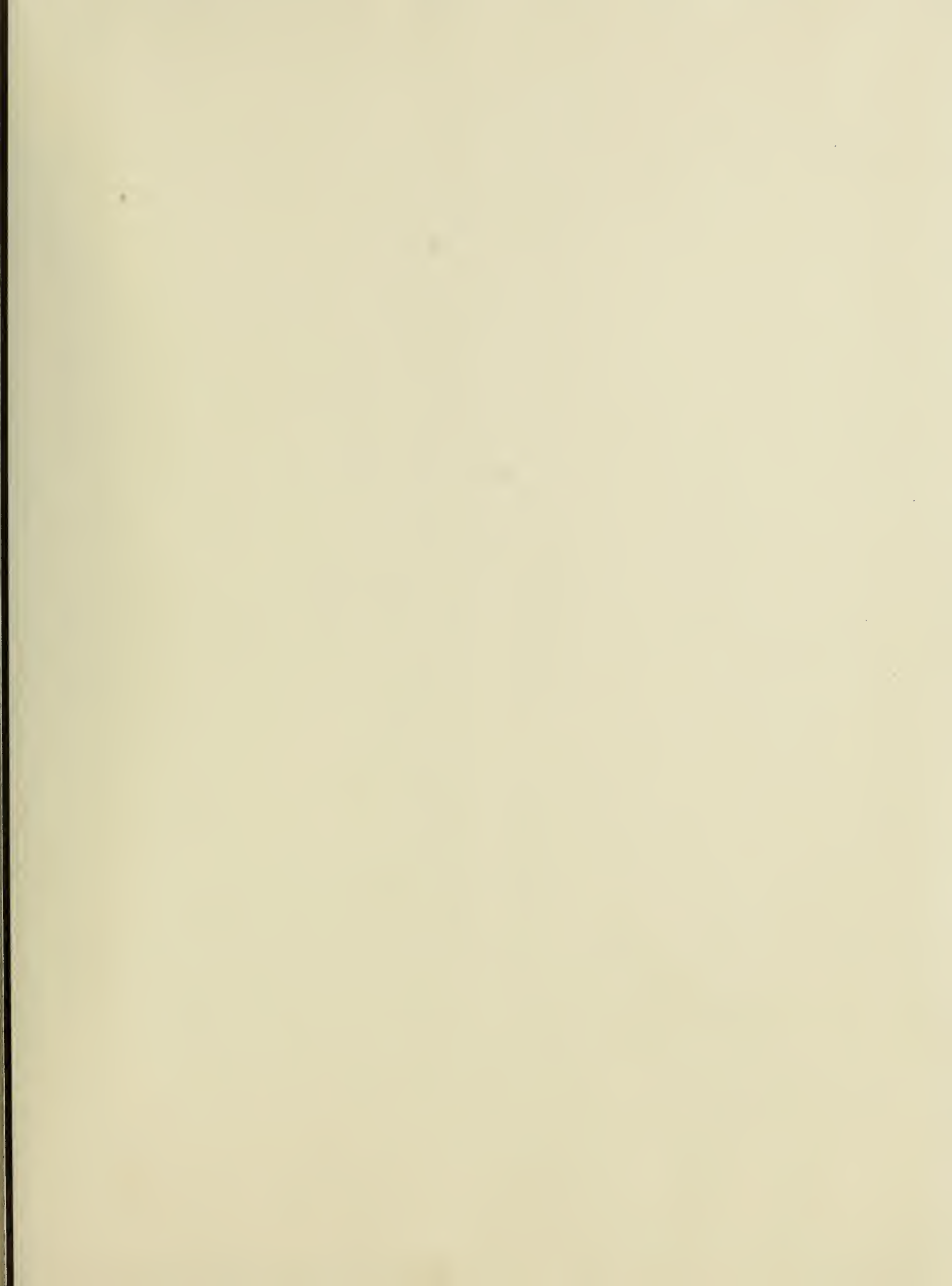


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